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M. D.

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A

TREATISE

ON THE

Operations of SURGERY,

WITH A

Deſcription and *Repreſentation*

OF THE

INSTRUMENTS

Uſed in Performing them:

To which is Prefix'd an

INTRODUCTION

ON THE

Nature and Treatment of WOUNDS, ABSCESSES *and* ULCERS.

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By *SAMUEL SHARP*,
Surgeon to *Guy's Hoſpital*.

J. Leath.

The THIRD EDITION.

LONDON,
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MDCCXL.

Crawford

TO

WILLIAM CHESELDEN, *Esq*;

Surgeon to *Chelsea-Hospital.*

SIR,

AS I am chiefly indebted to the Advantage of an Education under You, for whatever Knowledge I can pretend to in Surgery, I could not in the least hesitate to whom I should dedicate this Treatise, though

was it my Misfortune to be a Stranger to your Perſon, that Merit which has made the World ſo long eſteem You the Ornament of our Profeſſion, would alone have induced me to ſhew You this Mark of my Reſpect, which I hope will not be unacceptable from,

SIR,

Your moſt obedient

humble Servant,

S. SHARP.

PREFACE.

AS the Methods of operating in Surgery have of late Years been exceedingly improved in *England*, and there is no Treatiſe of Character on that Subject written in our Language, I believe there is no great occaſion to apologize for this Undertaking: It is true we have a few Tranſlations from the Writings of Foreigners, but beſides the great Diſadvantage they lie under from their Ignorance of theſe Improvements, their manner of deſcribing an Operation is ſo very minute, and in general ſo little pleaſing, that could nothing new be added, or nothing falſe be exploded,

the Poſſibility of only doing it more conciſely and agreeably would be a reaſonable Inducement to the Attempt.

In the Deſcription of Diſeaſes I have only mention'd their diſtinguiſhing Appearances, and have not once dared to gueſs at that particular Diſorder in the Animal Oeconomy, which is the immediate Cauſe of them; indeed the Uncertainty there is in Conjectures of this intricate Nature, and the little Service that can accrue to Surgery from ſuch ſpeculative Enquiries, have entirely deterred me from all Pretence to this ſort of Theory; and ſince the moſt ingenious Men hitherto, have not by the help of *Hypotheſes*, done any conſiderable Service to the Practice of Surgery, nay, for the moſt part have miſled young Surgeons from the Study of the Symptoms and Cure of Diſeaſes, to an idle turn of Reaſoning, and a certain Stile in Converſation,

verſation, which has very much diſcredited the Art amongſt Men of Senſe; I hope I am right in my Silence on that Head.

It has been very much my Endeavour to make this Treatiſe ſhort, and therefore I have given no Hiſtories of Caſes, but where the uncommonneſs of the Doctrine made it proper to illuſtrate it with Fact, and theſe I have recited in the moſt conciſe manner I was able: On this account too, I think I have not attempted to explode any Practice which is already in diſrepute, and if it appears otherwiſe to Men of Skill here in *London*, I beg they will refer to thoſe Books of Surgery which are now the beſt eſteem'd in *Europe*, and to which I have almoſt always had an Eye, in the Criticiſms I have made on the generality of Opinions.

It is uſual with moſt Writers to deſcribe at length the ſeveral Bandages

proper to be employed after each Operation; but as the manner of applying them can hardly be learnt from a Deſcription only, or if it could, there is ſo little to be ſaid on that Subject, but what muſt be copied from others, that I have forbore to follow the Example; though to ſay the Truth, the Purpoſe of Bandage being chiefly to maintain the due Situation of a Dreſſing, or to make a Compreſs on particular Parts, Surgeons always turn a Roller with thoſe Views as their Diſcretion and Dexterity guide them, without any regard to the exact Rules laid down in theſe Deſcriptions, which are almoſt impoſſible to be retain'd in the Memory without a continual Practice of them, and therefore we ſee are not much attended to.

In the firſt Edition of this Treatiſe, I mentioned (*p.* 99.) that the Hæmorrhage, which ſometimes enſues in the Lateral

Lateral Operation, had been eſteemed an Objection of ſo great Weight, as to have occaſion'd its being ſuppreſs'd in the Hoſpitals of *France* by a Royal Edict: I have ſince been inform'd I was miſtaken in that Particular, and that it had only been forbid in the *Charité* by Monſieur *Marechal*, the King's firſt Surgeon, who had the Inſpection of the Practice of Surgery in that Hoſpital: what were his Motives for not ſuffering this Method to be continued there after having been perform'd a whole Seaſon, I will not take upon me to determine.

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INTRO-

INTRODUCTION.

CHAP. I.

Of WOUNDS.

TO conceive rightly of the Nature and Treatment of Wounds, under the variety of Diſorders they are ſubject to, it will be proper firſt to learn, what are the Appearances in the Progreſs of Healing a large Wound, when it is made with a ſharp Inſtrument, and the Conſtitution is pure.

In this Circumſtance the Blood-Veſſels, immediately upon their Diviſion, bleed freely; and continue bleeding till they are either ſtopp'd by Art, or at length contracting and withdrawing themſelves into the Wound, their

Extremities are ſhut up by the coagulated Blood. The Hæmorrhage being ſtopp'd, the next Occurrence, in about twenty-four Hours is a thin ſerous Diſcharge, and a Day or two after an Increaſe of it, tho' ſomewhat thickened, and ſtinking. In this State it continues two or three Days without any great Alteration, and from that time the Matter grows thicker and leſs offenſive, and when the Bottom of the Wound fills up with little Granulations of Fleſh, it diminiſhes in its Quantity, and continues doing ſo till the Wound is quite skinn'd over.

THE firſt Stage of Healing, or the Diſcharge of Matter, is by Surgeons call'd *Digeſtion*; the Second, or the filling-up with Fleſh, *Incarnation*; and the laſt, or skinning-over, *Cicatrization*. Theſe are the Technical Terms chiefly in uſe, and are fully ſufficient to deſcribe the State of Wounds without the farther Subdiviſions uſually found in Books.

IT is worth obſerving, that the Loſs of any particular Part of the Body can only be repair'd by the Fluids of that diſtinct Part; and as in a broken Bone the Callus is generated from the Ends of the Fracture, ſo in a Wound is the Cicatrix from the Circumference of the Skin only: Hence ariſes the Neceſſity of keeping

ing the Surface even, either by Preſſure or Eating-Medicines, that the Eminence of the Fleſh may not reſiſt the Fibres of the Skin in their Tendency to cover the Wound. This Eminence is compos'd of little Points or Granulations call'd *Fungus*, or proud Fleſh, and is frequently eſteem'd an Evil, though in truth this Species of it is the conſtant Attendant on healing Wounds; for when they are ſmooth, and have no Diſpoſition to ſhoot out above their Lips, there is a Slackneſs to heal, and a Cure is very difficultly effected: Since then a *Fungus* prevents healing only by its Luxuriancy, and all Wounds cicatriſe from their Circumference, there will be no occaſion to deſtroy the whole *Fungus* every time it riſes, but only the Edges of it near the Lips of the Skin, which may be done by gentle Eſcharoticks, ſuch as Lint dipt in a mild Solution of *Vitriol*, or for the moſt part only by dry Lint, and a tight Bandage, which will reduce it ſufficiently to a Level, if apply'd before the *Fungus* has acquir'd too much Growth. In large Wounds, the Application of corroſive Medicines to the whole Surface is of no uſe, becauſe the *Fungus* will att in but to a certain height when left to it ſelf, which it will be frequently riſing up to though it be often waſted; and as all the Ad-

vantage to be gathered from it is only from the Evenneſs of its Margin, the Purpoſe will be as fully anſwer'd by keeping that under only, and an infinite deal of Pain avoided from the continual Repetition of Eſcharoticks.

When I ſpeak of the Neceſſity of a Wound being repair'd by the ſame Fluids of which the Part was before compos'd, I mean upon the Suppoſition that the Renewal be of the ſame Subſtance with the Part injur'd; as Callus is of Bone, and a Cicatrix is of Skin; for a Vacuity is generally filled up with one Species only of Fleſh, though it poſſeſs the Space, in which were included before the Wound was made, the diſtinct ſeparate Subſtances of *Membrana Adipoſa*, *Membrana Muſculorum*, and *the Muſcle itſelf*; and even if we ſcratch or perforate a Bone, there are certain wounded Veſſels in it that puſh out Fleſh which becomes the Covering of it; and after Fractures of the Skull, when the Surface of the Brain is hurt, and part of the Membranes, and Bones remov'd, the whole Cavity is fill'd up by nearly the ſame uniform Subſtance, till it arrives even with the Skin, which ſpreads over it to compleat the Cure.

On this account it is that after the healing of Wounds, from the Surface of the Bone, the

the Cicatrix is adherent to it, and no abſolute Diſtinction of Parts preſerv'd; though if a Wound be made of any Magnitude, the Adherence, after healing, will not be ſo wide as the Wound itſelf was, but only of the Extent of the Cicatrix, which is always much ſmaller than the Inciſion, becauſe Healing does not conſiſt only in the forming of new Matter, but alſo in the Elongation of the Fibres of the circumjacent Skin and Fleſh towards the Center of the Wound; which will cover it in more or leſs time, and in greater or leſs Quantity in proportion to their Laxneſs; for the Scar does not begin to form till they reſiſt any farther Extenſion; hence ariſes the Advantage in Amputations of ſaving a great deal of Skin.

From what has been ſaid of the Progreſs of a Wound made by a ſharp Inſtrument, where there is no Indiſpoſition of Body, we ſee the Cure is perform'd without any Interruption but from the *Fungus*; ſo that the Buſineſs of Surgery will conſiſt principally in a proper Regard to that Point, and in Applications that will the leaſt interfere with the ordinary courſe of Nature, which in theſe Caſes will be ſuch as act the leaſt upon the Surface of the Wound; and agreeable to this we find, that

dry Lint only is generally the beſt Remedy through the whole courſe of dreſſing; at firſt it ſtops the Blood with leſs Injury than any ſtyptick Powders or Waters, and afterwards by abſorbing the Matter, which in the beginning of Suppuration is thin and acrimonious, it becomes in effect a Digeſtive: During Incarnation it is the ſofteſt Medium that can be apply'd between the Roller and tender Granulations, and at the ſame time is an eaſy Compreſs upon the ſprouting *Fungus*.

OVER the dry Lint may be applied a Pledgit of ſome ſoft Ointment ſpread upon Tow, which muſt be renewed every Day, and preſerv'd in its Situation by a gentle Bandage; though in all large Wounds, the firſt Dreſſing after that of the Accident or Operation, ſhould not be applied in leſs than three Days, when, the Matter being form'd, the Lint ſeparates more eaſily from the Part; in the Removal of which no Force ſhould be us'd, but only ſo much be taken away as is looſe, and comes off without Pain.

PERHAPS it may appear ſurprizing that I do not recommend either digeſtive or incarnative Ointments, which have had ſuch Reputation formerly for their Efficacy in all Species of Wounds; but as the Intent of Medicines is

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to reduce the Wound to a natural State, or a Propenſity to heal, which is what I have already ſuppos'd it to be in; the End of ſuch Applications is not wanted, and in other reſpects dry Lint is more advantageous, as may be learnt from what I have ſaid of its Benefits. There are certainly abundance of Caſes in which different Applications will have their ſeveral Uſes, but theſe are when Wounds are attended with a variety of Circumſtances not ſuppoſed in that I have been ſpeaking of; though even when theſe, by the virtue of Medicines, are reduced to as kind a State, the Method of treating them afterwards ſhould be the ſame, as will be better underſtood by the next Chapter, in which I ſhall treat more particularly of the Dreſſing of Wounds.

CHAP. II.

Of Inflammations *and* Abſceſſes.

AS almoſt all Abſceſſes are the Conſequences of Inflammations, and theſe produce a variety of Events, as they are differently complicated with other Diſorders, it will be proper firſt to make ſome Inquiry into their Diſ-

poſition. Inflammations from all Cauſes have three ways of terminating, either by Diſperſion, Suppuration, or Gangrene; a Schirrus after an Inflammation of a Gland is always mentioned as a fourth, but I think with Impropriety, ſince it ſeldom or never occurs, but in venereal, ſcrophulous, or cancerous Caſes, and then it is the Fore-runner, and not the Conſequence of an Inflammation, the Tumour generally appearing ſome time before the Diſcolouration.

But though every kind of Inflammation will ſometimes terminate in different Shapes, yet a probable Conjecture of the Event may be always gathered from the State of the Patient's Health. Thus Inflammations happening in a ſlight degree upon Colds, and without any foregoing Indiſpoſition, will moſt likely be diſpers'd; thoſe which follow cloſe upon a Fever, or happen to a very groſs Habit of Body, will generally impoſthumate; and thoſe which fall upon very old People, or Dropſical Conſtitutions, will have a ſtrong Tendency to gangrene.

If the State of an Inflammation be ſuch as to make the Diſperſion of it ſafely practicable, that End will be beſt brought about by Evacuations, ſuch as plentiful Bleeding and repeated Purges; the Part it ſelf muſt be treated

ed with Fomentations twice a Day; and if the Skin be very tenſe, it may be embrocated with a Mixture of three Fourths of Oil of Roſes, and one Fourth of common Vinegar, and afterwards be covered with *Unguent. Flor. Samb.* or a ſoft Ointment made of white Wax and Sweet Oil, ſpread upon a fine Rag, and roll'd on gently. I know almoſt all Surgeons are averſe to the Application of any thing unctuous to an inflam'd Skin, upon the Suppoſition of its obſtructing the Pores, and by that means preventing the Tranſpiration of the obſtructed Fluids, which is imagin'd to be one of the ways that an Inflammation is remov'd; but whether this Reaſoning is founded on Practice or Theory only I am not clear; though I think it very certain that Inflammations left to themſelves often grow ſtiff and painful, and are to be eaſed by any Medicine that makes them more ſoft and pliable; which does not look as though relaxing Medicines interrupted the Diſpoſition to a Cure: However, to preſerve ſome ſort of Medium, in Inflammations of the Face, where they are eſteem'd moſt dangerous, it may be made a Rule to uſe nothing more oily than warm Milk, with which the Face may be embrocated five or ſix times a Day. If after four or five Days the Inflammation begins to ſubſide,

ſide, the Purging-Waters and Manna may take place of other Purges, and the Embrocation of Oil and Vinegar be now omitted, or ſooner if it has begun to excoriate. The Ointment of Wax and Oil may be continued to the laſt, or if upon concluſion of the Cure the itching of the Skin ſhould be troubleſome, it may be better relieved by the Application of Nutritum, which is an Ointment made of equal Parts of Diachylon and ſweet Oil, melted ſoftly down, and afterwards ſtirr'd together with a little addition of Vinegar till they are cold. During the Cure a thin Diet is abſolutely neceſſary, and in the height of the Inflammation the drinking of thin Liquors is of great ſervice.

HERE I have ſuppos'd that the Inflammation had ſo great a Tendency to diſcuſs, as by the help of proper Aſſiſtance to terminate in that manner, but when it happens that the Diſpoſition of the Tumour reſiſts all diſcutient means, we muſt then deſiſt from any farther Evacuations, and as much as we can, aſſiſt Nature in the bringing on a Suppuration.

THAT Matter will moſt likely be form'd we may judge from the Increaſe of the ſymptomatick Fever, and Enlargement of the Tumour with more Pain and Pulſation; and if a ſmall Rigor comes on, it is hardly to be doubted:

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Inflammations after a Fever, and the *Small-Pox*, almoſt always ſuppurate, but theſe preſently diſcover their Tendency, or at leaſt ſhould be at firſt gently treated, as tho' we expected an Impoſthumation. It is a Maxim laid down in Surgery that Evacuations are pernicious in every Circumſtance of a Diſeaſe that is at laſt to end in Suppuration: But as Phyſicians do now acknowledge that bleeding on certain Occaſions in the Small-Pox is not only no Impediment to the Maturation, but even promotes it, ſo in the Formation of Abſceſſes, when the Veſſels have been clogg'd, and the Suppuration has not kindly advanc'd, bleeding has ſometimes quicken'd it exceedingly, but however this Practice is to be follow'd with Caution. Purges are, no doubt, improper at this time, yet if the Patient be coſtive, he muſt be aſſiſted with gentle Clyſters every two or three Days.

Of all the Applications invented to promote Suppuration, there are none ſo eaſy as Pultices, but as there are particular Tumours very ſlow of Suppuration, and almoſt void of Pain, ſuch for Inſtance, as ſome of the ſcrophulous Swellings, it will be leſs troubleſome in ſuch Caſes to wear the Gum-Plaiſters, which may be renew'd every four or five Days only. Amongſt the ſuppurative Pultices, perhaps there is none pre-

preferable to that made of Bread and Milk ſoftened with Oil, at leaſt the Advantage of any other over it, is not to be diſtinguiſhed in Practice. The Uſe of ſuppurative Plaiſters in haſty Abſceſſes, or Inflammations in a weak or dropſical Habit of Body, is by no means adviſeable, as they are apt to ſit uneaſy on the Inflammation, are often painful to remove when we enquire into the State of the Tumour, and by their Compreſs in bad Conſtitutions add ſomething to the Diſpoſition of the Part to mortify. The Abſceſs may be cover'd with the Pultice twice a-day, till it be come to that Ripeneſs as to require opening, which will be known by the Thinneſs and Eminence of the Skin in ſome part of it, a Fluctuation of the Matter, and generally ſpeaking an Abatement of the Pain that has preceded theſe Appearances. The Manner of opening an Abſceſs I ſhall deſcribe, after having ſpoke of a Gangrene, which is the other Conſequence of an Inflammation.

THE Signs of a Gangrene are theſe: the Inflammation loſes its Redneſs, and becomes duſkiſh and livid, the Tenſeneſs of the Skin goes off, and feels to the Touch flabby or emphyſematous, Veſications fill'd with Ichor of different Colours ſpread all over it; the Tumour ſubſides, and from a duskiſh Complexion, turns black;

black; the Pulſe quickens and ſinks, and profuſe Sweats coming on, at laſt grow cold, and the Patient dies.

To ſtop the Progreſs of a Mortification, the Method of Treatment will be nearly the ſame, from whatever Cauſe it proceeds, except in that ariſing from Cold; in which Caſe we ought to be cautious not to apply Warmth too ſuddenly to the Part, if it be true that in the Northern Countries they have daily Conviction of Gangrenes produced by this means, which might have been eaſily prevented by avoiding Heat; nay, they carry their Apprehenſion of the danger of ſudden Warmth ſo far, as to cover the Part with Snow firſt, which they ſay ſeldom fails to obviate any ill Conſequence; but I am inclin'd to think there is a Mixture of Prejudice in this Proceeding.

THE Practice of ſcarifying Gangrenes, by ſeveral Inciſions down to the quick, is almoſt univerſal, and, I think, with Reaſon, ſince it not only ſets the Parts free, and diſcharges a pernicious Ichor, but makes way for whatever Efficacy there may be in topical Applications. Theſe are different with different Surgeons, but I believe the Digeſtives ſoftened with Oil of Turpentine are as good Dreſſings as any for the Scarifications; and upon them all over the Part may be

be laid the *Theriaca Londinenſis*, which ſhould be alſo us'd in the beginning of a Gangrene before the neceſſity of ſcarifying. There are ſome who inſiſt upon having had particular Succeſs in the ſtopping of Gangrenes, from the Uſe of the Grounds of ſtrong Beer mix'd up with Bread or Oatmeal, but there are hardly any Facts leſs proper to infer from than the Ceaſing of a Mortification, ſince we ſee amongſt the Poor that are brought into the Hoſpitals, how often it happens without any Aſſiſtance; however, to be ſure Service may be done by ſpirituous Fomentations, and the Dreſſings above-mention'd, which are to be repeated twice a-day: Medicines alſo given internally are beneficial, and theſe ſhould conſiſt of the Cordial kind, tho' at preſent the Bark is order'd by a great many Surgeons as the ſovereign Remedy for this Diſorder: After the Separation of the Eſchar, the Wound becomes a common Ulcer, and muſt be treated as ſuch.

THERE are two ways of opening an Abſceſs, either by Inciſion or Cauſtick, but Inciſion is preferable in moſt Caſes; in ſmall Abſceſſes there is ſeldom a Neceſſity for greater Dilatation than what is procur'd by opening the Length of them with a Point of a Lancet; and in large ones, where there is not a great quantity of Skin diſcolour'd and become thin,

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an Inciſion to their utmoſt Extent, will uſually anſwer the Purpoſe, or if there be much thin diſcolour'd Skin, a circular or oval Piece of it muſt be cut away; which Operation, if done dextrouſly with a Knife, is much leſs painful than by Cauſtick, and at once lays open a great Space of the Abſceſs, which may be dreſs'd down to the bottom, and the Matter of it be freely diſcharged, whereas after a Cauſtick, tho' we make Inciſions through the Eſchar, yet the Matter will be under ſome Confinement, and we cannot have the Advantage of dreſſing properly till the Separation of the Slough, which often requires a conſiderable time, ſo that the Cure muſt be neceſſarily delay'd; beſides that the Pain of Burning continuing two or three Hours, which a Cauſtick uſually takes up in doing its Office, draws ſuch a Fluxion upon the Skin round the Eſchar as ſometimes to indiſpoſe it very much for healing afterwards. In the Uſe of Cauſticks it is but too much a Practice to lay a ſmall one on the moſt prominent Part of a large Tumour, which not giving ſufficient Vent to the Matter, and perhaps the Orifice ſoon after growing narrow, leads on to the Neceſſity of employing Tents, which two Circumſtances more frequently make Fiſtula's after an Abſceſs, than any Malignity in the Nature

ture of the Abſceſs itſelf. The Event would more certainly be the ſame of a ſmall Inciſion, but I obſerve, that Surgeons not depending ſo much on ſmall Openings by Inciſion, as by Cauſtick, do, when they uſe the Knife, generally dilate ſufficiently; whereas in the other way a little Opening in the moſt depending Part of the Tumour uſually ſatisfies them; but as the Method of making ſmall Orifices for great Diſcharges is for the moſt Part tedious of Cure, very often requiring Dilatation at laſt, and now and then pernicious in the Conſequence abovemention'd, and even making the adjacent Bones carious, I thought it might not be uſeleſs to caution againſt this Practice.

THE indiſcriminate Application of Cauſticks to all Abſceſſes, often runs into the ſame Miſchief of Tedioufneſs in the Cure, from a Cauſe exactly the reverſe of that I have been deſcribing; for as in great Swellings they are ſeldom laid on large enough, and the Matter continues draining for want of a ſufficient Opening, ſo in ſmall ones they make a greater Opening than is neceſſary, and therefore demand a greater length of time to repair the Wound. I confeſs the Diſpoſition of Abſceſſes to fill up, after the Diſcharge of Matter, is ſo very different, that ſome few large ones do well after the mere

Puncture

Puncture of a Lancet, if the Orifice be made in a depending Part, and a proper Bandage can be applied; though if ever we truſt to ſuch an Opening, it ſhould be in Abſceſſes about the Face, where we ſhould be more careful to avoid the Deformity of a Scar than in any other Part, and where alſo the Method will be more likely to ſucceed, from their Situation, it being a Maxim in Surgery, that Abſceſſes and Ulcers will have a greater or leſs Tendency to heal, as they are higher or lower in the Body; however in Abſceſſes of the Face, if the Skin be very thin, it will be always ſafer to open the length of it, than truſt to a Puncture only.

FROM this Account of the Method of opening Abſceſſes, it does not appear often neceſſary to apply Cauſticks, yet they have their Advantages in ſome reſpects, and are ſeldom ſo terrible to Patients as the Knife, though they are generally more painful to bear; they are of moſt uſe in Caſes where the Skin is thin and inflam'd, and we have reaſon to think the Malignity of the Abſceſs is of that nature as to prevent a Quickneſs of Incarning, in which Circumſtance, if an Inciſion only was made through the Skin, little Sinuſes would often form, and burrow underneath, and the Lips of it lying looſe and flabby would be-

come callous, and retard the Cure, though the malignity of the Wound was corrected: Of this kind are Venereal Buboes, which though they often do well by mere Inciſion, yet when the Skin is in the State I have ſuppos'd, the Cauſtick is always preferable, as I have had many Opportunities of being convinced. It is to be obſerved I confine this Method to Venereal Buboes, for thoſe which follow a Fever or the Small-Pox for the moſt part cure by Inciſion only. There are many ſcrophulous Tumours, where the Reaſoning is the ſame as in the Venereal; and even in great Swellings where I have recommended Inciſion, if the Patient will not ſubmit to cutting, and the Surgeon is apprehenſive of any danger in wounding a large Veſſel, which is often done with the Knife, though it may readily be tied up with a Needle and Ligature; yet as this Inconvenience is avoided by Cauſtick, it may on ſuch an occaſion be made uſe of; but I think after the Eſchar is made, it ſhould be cut almoſt all away, which will be no Pain to the Patient, and will give a much freer Diſcharge to the Matter than Inciſions made through it: However in ſcrophulous Swellings of the Neck and Face, unleſs they are very large, Cauſticks are not adviſeable, ſince in that part of the Body,

Body, with length of time, they heal after Inciſion. Cauſticks are of great Service in deſtroying ſtubborn ſcrophulous Indurations of the Glands, alſo venereal Indurations of the Glands of the Groin, which will neither diſcuſs nor ſuppurate; likewiſe in expoſing carious Bones, and making large Iſſues. The beſt Cauſtick in uſe is *Lapis Infernalis* powdered and mix'd into a Paſte with Soap, which is to be prevented from ſpreading, by cutting an Orifice in a piece of ſticking Plaiſter, nearly as big as you mean to make the Eſchar, which being applied to the Part, the Cauſtick muſt be laid on the Orifice and preſerved in its Situation, by a few Slips of Plaiſter laid round its Edges, and a large Piece over the whole. When Iſſues are made, or Bones expos'd, the Eſchar ſhould be cut out immediately, or the next Day, for if we wait the Separation, we miſcarry in our Deſign of making a deep Opening, ſince Sloughs are flung off by the ſprouting new Fleſh underneath, which fills up the Cavity at the ſame time that it diſcharges the Eſchar, ſo that we are obliged afterwards to make the Cavity a ſecond time with painful eſcharotick Medicines. To make an Iſſue, or lay a Bone bare, this Cauſtick may lie on about four Hours; to deſtroy a large Gland five or ſix, and to open

Abſceſſes an Hour and a half, two Hours, or three Hours according to the Thickneſs of the Skin; and what is very remarkable, notwithſtanding its Strength and ſudden Efficacy, it frequently gives no Pain where the Skin is not inflamed, as in making Iſſues and opening ſome few Abſceſſes.

HITHERTO I have ſuppoſed the Surgeon has had the Opportunity of opening the Tumour at the moſt eligible Time, that is when the Skin is thin, and the Fluctuation of the Matter very ſenſible, which is always to be waited for, notwithſtanding it is very much taught, to open critical Abſceſſes before they come to an exact Suppuration, in order to give Vent ſooner to the noxious Matter of the Diſeaſe; but in opening before this Period they miſs the very Deſign they aim at, ſince but little Matter is depoſited in the Abſceſs before it arrives towards its Ripeneſs, and beſides, the Ulcer afterwards grows foul, and is leſs diſpos'd to heal.

WHEN an Abſceſs is already burſt, we are to be guided by the Probe where to dilate, obſerving the ſame Rules with regard to the degree of Dilatation, as in the other Caſe; the uſual Method of opening farther is with the Probe-Sciſſars, and indeed in all Abſceſſes the generality of Surgeons uſe the Sciſſars, after having

firſt

firſt made a Puncture with a Lancet, but as the Knife operates much quicker, and with leſs violence to the Parts, than Sciſſars, which ſqueeze at the ſame time that they wound, 'twill be ſparing the Patient a great deal of Pain to uſe the Knife, wherever it is practicable, which is in almoſt all Caſes, except ſome *Fiſtula*'s *in Ano*, where the Sciſſars are more convenient. The manner of opening with a Knife is by ſliding it on a Director, the Groove of which prevents its being miſguided. If the Orifice of the Abſceſs be ſo ſmall as not to admit the Director, or the Blade of the Sciſſars, it muſt be enlarged by a piece of Sponge-Tent, which is made by dipping a dry bit of Sponge in melted Wax, and immediately ſqueezing as much out of it again as poſſible, between two pieces of Tyle or Marble; the Effect of which is, that the looſe Sponge being compreſſed into a ſmall compaſs, when any of it is introduced into an Abſceſs, the Heat of the Part melts down the remaining Wax that holds it together, and the Sponge ſucking up the Moiſture of the Abſceſs expands, and in expanding opens the Orifice wider, and by degrees, ſo as to give very little Pain.

THE uſual Method of dreſſing an Abſceſs, the firſt time, is with dry Lint only, or if there

be no Flux of Blood, with ſoft Digeſtives ſpread on Lint. If there be no danger of the upper Part of the Wound reuniting too ſoon, the Doſſils muſt be laid in looſe, but if the Abſceſs be deep, and the Wound narrow, as is the Caſe ſometimes of Abſceſſes *in Ano*, the Lint muſt be cramm'd in pretty tight, that we may have afterwards the Advantage of dreſſing down to the bottom without the uſe of Tents which are almoſt univerſally decry'd in theſe Days, though they ſtill continue to be employ'd too much by the very People, who would ſeem to explode them moſt, ſo difficult is it to be convinc'd of the true Efficacy of Nature in the healing of Wounds. Formerly the Virtues of Tents have been much inſiſted on, as it was then thought abſolutely neceſſary to keep Wounds open a conſiderable time to give Vent to the imaginary Poiſon of the Conſtitution; it was ſuppos'd too, that they were beneficial in conveying the proper ſuppurative or ſarcotick Medicines down to the bottom of the Abſceſs, and again, that by abſorbing the Matter they preſerved the Cleanlineſs of the Wound, and diſpos'd it to heal. But this Reaſoning is not now eſteemed of any Force; Surgeons at preſent know a Wound cannot heal too faſt, provided it heal firm from the bottom; they

they are very well ſatisfied alſo from what they ſee in Wounds, where no Medicines are apply'd, that Nature of herſelf ſhoots forth new Fleſh, and is interrupted by any Preſſure whatſoever; beſides, as to the Conceit of Tents ſucking up the Matter, which is eſteem'd noxious to healing, they are ſo far from being beneficial in the Performance of it, that they are of great Prejudice; for if the Matter be offenſive in its Nature, though they do abſorb it, they bring it into Contact with every Part of the Sinus, and if it be prejudicial by its Quantity they do Miſchief in locking it up in the Abſceſs, and preventing the Diſcharge it would find if the Dreſſings were only ſuperficial; but in fact, Matter when it is good, is of no Diſſervice to Wounds with regard to its Quality, and Surgeons ſhould therefore be leſs curious in wiping them clean, when they are tender and painful. That Tents are Impediments to healing rather than Aſſiſtants, we may learn from conſidering the effect of a Pea in an Iſſue, which by Preſſure keeps open the Wound juſt as Tents do, and if there are Inſtances of Wounds healing very well notwithſtanding the uſe of Tents, ſo there are alſo of Iſſues healing up, in ſpite of any Meaſures we can take to keep a Pea in its Cavity. In ſhort

Tents in Wounds by reſiſting the growth of the little Granulations of Fleſh, in proceſs of time harden them, and in that manner produce a Fiſtula, ſo that inſtead of being us'd for the Cure of an Abſceſs they never ſhould be employed but where we mean to retard the healing of the external Wound, except in ſome little narrow Abſceſſes, where if they be not cramm'd in too large, they become as Doſſils, admitting of Incarnation at the bottom; but Care ſhould be taken not to inſinuate them much deeper than the Skin in this caſe, and that they ſhould be repeated twice a-day to give Vent to the Matter they confine. Sometimes they are of ſervice in large Abſceſſes, particularly of the Breaſt, where the Matter cannot diſcharge itſelf by the Orifice already made, and yet does not point ſufficiently to any other part for an opening, though it makes Signs whither it would tend, if it was a little confin'd. In ſuch an Inſtance a Tent plugging up the Orifice, would make the Matter recur to the Part diſpos'd to receive it, and mark the Place for a Counter-opening: But Tents do moſt good in little deep Abſceſſes, whence any extraneous Body is to be evacuated, ſuch as ſmall Splinters of Bone, *&c.*

The Uſe of Vulnerary Injections into Abſceſſes bears ſo near a Reſemblance to the Uſe of Tents, that if the one Method is prejudicial, the other muſt be ſo likewiſe. It has been ſaid in their favour, that in deep Abſceſſes where no Ointment can be applied, they digeſt, cleanſe, and correct the Malignity of the *Pus*; but they do ſo much miſchief by frequently diſtending the Parts of the Abſceſs, and in a manner macerating the new Fleſh generated within them, that they are hardly proper in any Caſe; though one of the great Miſchiefs of Injections and Tents both, has been a miſtaken Faith amongſt Practitioners, that wherever their Medicines were apply'd the Part would heal; and upon that Preſumption they have neglected to dilate Abſceſſes, which have not only remain'd incurable after this Treatment, but would often have done ſo for want of a Diſcharge, if they had been dreſs'd more ſuperficially.

In dreſſing Wounds it is common to apply the Medicines warm, or hot, upon the Suppoſition that heated Ointments have a ſtronger Power of digeſting than cold; but as any Medicine will ſoon arrive to the Heat of the Part it is laid on, whether it be apply'd hot or cold, the Efficacy of the Heat can

can avail but little in ſo ſmall a time; and as Doſſils dipt in hot Ointments are not cleanly, and even grow ſtiff and painful, I think it rather preferable to apply them cold, or perhaps in Winter a little warm'd before the Fire after they are ſpread; obſerving, if the Ulcer be uneven, to make the Doſſils ſmall in order to lie cloſe. Over the Doſſils of Lint may be laid a large Pledgit of Tow ſpread with Baſilicon, which will lie ſofter than a defenſative Plaiſter, for this, though invented to defend the Circumference of Wounds againſt Inflammation or a Fluxion of Humours, is often the very Cauſe of them, ſo that the Dreſſings of large Wounds ſhould never be kept on by theſe Plaiſters where there is danger of ſuch Accidents; and 'tis on the account of the Unfitneſs of Plaiſters of any kind for an Inflammation, that I have omitted to mention any of them as proper Diſcutients in that Diſorder. In this manner the Dreſſings may be continued, till the Cavity is incarned, and then it may be cicatriſed with dry Lint, or ſome of the cicatriſing Ointments, obſerving to keep the *Fungus* down as directed before: If the Drying-Ointment be the *Cerat. de Lapid. Calam.* the Stone muſt be levigated before it is put into it, otherwiſe the Ointment will be corroſive.

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In the courſe of Dreſſing it will be proper to have regard to the Situation of the Abſceſs, and as much as poſſible to make the Patient favour the Diſcharge by his ordinary Poſture; and to this end alſo, as what is of greater Importance than the Virtue of any Ointment, the Diſcharge muſt be aſſiſted by Compreſs and Bandage; the Compreſs may be made of Rags or Plaiſter, tho' the latter is ſometimes preferable, as it remains immoveable on the Part it is applied to. The frequency of Dreſſing will depend on the Quantity of Diſcharge; once in twenty four Hours is ordinarily ſufficient; but ſometimes twice, or perhaps three times is neceſſary. I have before mention'd not to be too ſcrupulouſly nice in cleaning a Wound; but it is worth remarking, that a Sore ſhould never be wiped by drawing a piece of Tow or Rag over it, but only by dabbing it with fine Lint, which is a much eaſier Method for the Patient; the Parts about it may be wiped clean in a rougher manner without any Prejudice. I do not think the Air has that ill effect on Sores as is generally conceiv'd; nor would the large Abſceſſes on Beaſts, which are often expos'd to the Air the whole time of Cure, do well, if it was ſo very pernicious as is repreſented; but as it tends to the making a Scab, and in Winter

ter is a little painful to the new Fleſh, it will be right to finiſh the Dreſſing as quick as may be without hurrying. Another Caution neceſſary in the Treatment of Abſceſſes, is, That Surgeons ſhould not upon all occaſions ſearch into their Cavities with the Finger or Probe, as it often tears them open and indiſpoſes them for a Cure.

CHAP. III.

Of ULCERS.

WHEN a Wound or Abſceſs degenerates into ſo bad a State as to reſiſt the Methods of Cure I have hitherto laid down, and loſes that Complexion which belongs to a healing Wound, it is called an Ulcer, and as the Name is generally borrow'd from the ill Habit of the Sore, it is a Cuſtom to apply it to all Sores that have any degree of Malignity, tho' they are immediately form'd without any previous Abſceſs or Wound; ſuch are the Venereal Ulcers of the Tonſils, *&c.*

ULCERS are diſtinguiſhed by their particular Diſorders, though it ſeldom happens that the Affections are not complicated; and when we

we lay down Rules for the Management of one Species of Ulcer, it is generally requiſite to apply them to almoſt all others. However the Characters of moſt eminence are, the callous Ulcer, the ſinuous Ulcer, and the Ulcer with Caries of the adjacent Bone; tho' there are abundance more known to Surgeons, ſuch as the Putrid, the Corroſive, the Varicous, *&c.* but as they have all acquired their Names from ſome particular Affection, I ſhall ſpeak of the Treatment of them under the general Head of Ulcers.

It will be often in vain to purſue the beſt means of Cure by Topical Application, unleſs we are aſſiſted by internal Remedies; for as many Ulcers are the Effects of a particular Indiſpoſition of Body, it will be difficult to bring them into order, while the Cauſe of them remains with any Violence; though they are ſometimes in a great degree the Diſcharge of the Indiſpoſition itſelf, as in the Plague, Small-pox, *&c.* But we ſee it generally neceſſary in the Pox, the Scurvy, Obſtructions of the Menſes, Dropſies, and many other Diſtempers, to give Internals of great Efficacy; and indeed there are hardly any Conſtitutions where Ulcers are not aſſiſted by ſome Phyſical Regimen. Thoſe that are cancerous and ſcrophulous ſeem to gain the leaſt Advan-

Advantage from Phyſick, for if in their Beginnings they have ſometimes been very much relieved, or cured by Salivation, or any other Evacuation, they are often irritated, and made worſe by them; ſo that there is nothing very certain in the Effects of violent Medicines in theſe Diſtempers. I have ſeen alſo great Quantities of Alteratives tried on a variety of Subjects, but I cannot ſay with extraordinary Succeſs: Upon the whole, I think in both theſe Caſes, the Milk-Diet and gentle Purging with Manna, and the Waters, ſeem to be moſt efficacious; though brisk Methods may be uſed with more Safety in the Evil, than the Cancer. As to the Internal Remedies in the other Diſorders, they are to be learnt in moſt Phyſical Treatiſes.

When an Ulcer becomes foul, and diſcharges a naſty thin Ichor, the Edges of it in proceſs of time, tuck in, and growing skinn'd and hard, give it the Name of a callous Ulcer, which ſo long as the Edges continue in that State, muſt neceſſarily be prevented from healing: But we are not immediately to deſtroy the Lips of it in expectation of a ſudden Cure, for while the Malignity of the Ulcer remains, which was the occaſion of the Calloſity, ſo long will the new Lips be ſubject to a Relapſe of the ſame kind, however often the external

external Surface of them be deſtroy'd; ſo that when we have to deal with this Circumſtance, we are to endeavour to bring the Body of the Ulcer into a Diſpoſition to recover by other Methods. It ſometimes happens to poor laborious People, who have not been able to afford themſelves Reſt, that lying a-bed will in a ſhort time give a Diverſion to the Humours of the Part, and the callous Edges ſoftening, will, without any great Aſſiſtance ſhoot out a Cicatrix, when the Ulcer is grown clean and fill'd with good Fleſh. The Effect of a Salivation is generally the ſame; and even an Iſſue does ſometimes diſpoſe a neighbouring Ulcer to heal: But though Calloſities are often ſoftened by theſe Means, yet when the Surface of the Ulcer begins to yield thick Matter, and little Granulations of red Fleſh ſhoot up, it will be proper to quicken Nature by deſtroying the Edges of it, if they remain hard. The manner of doing this is by touching them a few Days with the Lunar Cauſtick, or *Lapis infernalis*, and ſome chuſe to cut them off with a Knife; but this laſt Method is very painful, and not, as I can perceive, more efficacious; tho' when the Lips do not tuck down cloſe to the Ulcer, but hang looſe over it, as in ſome Venereal Buboes where the Matter lies a great

a great way under the Edges of the Skin, the eaſieſt Method is cutting them off with the Sciſſars.

To digeſt the Ulcer, or to procure good Matter from it when in a putrid State, there are an Infinity of Ointments invented; but the *Baſilicon flavum* alone, or ſoften'd down ſometimes with Turpentines, and ſometimes mixt up with different Proportions of red Precipitate, ſeems to ſerve the Purpoſes of bringing an Ulcer on to Cicatriſation as well as any of the others. When the Ulcer is incarn'd, the Cure may be finiſh'd as in other Wounds, or if it does not cicatriſe kindly, it may be waſh'd with *Aq. Calcis*, or *Aq. Phag.* or dreſs'd with a Pledgit dipt in *Tinct. Myrrhæ:* And if Excoriations are ſpread round the Ulcer, they may be anointed with *Sperm. Cet.* Ointment, or *Unguent. Nutritum.*

The *Red Precipitate* has of late Years got into the Credit it deſerves for the Cure of Ulcers, but by falling into general uſe is often very unskilfully applied: When mix'd up with the *Baſilicon*, or what is neater a Cerat of Wax and Oil, it is moſt certainly a Digeſtive, ſince it hardly ever fails to make the Ulcer yield a thick Matter in twenty-four Hours, which diſcharg'd a thin one before the Application of it,

it. As greater Proportions of it are added to the Cerate, it approaches to an Eſcharotick; but while it is mix'd with any Ointment, it is much leſs painful and corroſive than when ſprinkled on a Sore in Powder; though in this Form, it is almoſt univerſally employ'd, but I think injudiciouſly: For as it is a ſtrong Eſcharotick, much of it can never be uſed without making a Slough, and therefore continually repeating it Day after Day will be making a Succeſſion of Sloughs; or if it be ſprinkled on a Slough already form'd, in order to quicken the Separation of it, ſo much of the Powder as lies on the dead Surface will be of no force, and the reſt that lies at the bottom, and about it, will produce other Sloughs there, by keeping under and deſtroying the little Granulations of Fleſh, which in their Growth would elevate and puſh off the firſt Slough, ſo that it cannot be a proper Remedy in this Caſe. If it be anſwer'd, that daily Practice ſhould convince us that *Precipitate* has not this ill effect, ſince we ſee Sloughs continually ſeparating, notwithſtanding the uſe of it, the ſame ſort of Argument may be us'd in favour of any bad Practice, ſince Nature often ſurmounts the greateſt Obſtacles to a Cure: But whoever will attend carefully, without any

Prejudice from this Reaſoning, to the two Methods of promoting the Separation of an Eſchar, will find it not only more eaſily, but alſo more readily effected by ſoft Digeſtives, or the *Precipitate* Medicine, than by a great Quantity of the Powder.

If the Ulcer ſhould be of ſuch a nature as to produce a ſpongy lax Fleſh, ſprouting very high above the Surface, it will be neceſſary to deſtroy it by ſome of the Eſcharoticks or the Knife: This *Fungus* differs very much from that belonging to healing Wounds, being more eminent and lax, and generally in one Maſs; whereas the other is in little diſtinct Protuberances. It approaches often towards a cancerous complexion, and when it riſes upon ſome Glands does actually degenerate ſometimes into a Cancer, as has happened in Buboes of the Groin. When theſe Excreſcencies have aroſe in Venereal Ulcers, I have par'd them with a Knife, but the Flux of Blood is ordinarily ſo great, that I do not recommend the Method, and rather prefer the Eſcharoticks. Thoſe in uſe are the *Vitriol*, the *Lunar Cauſtick*, the *Lapis Infernalis*, and more generally the red *Precipitate* Powder; but even in this caſe I do not think the Powder the beſt Remedy, for tho' I have ſaid it is always an Eſcharotick, yet

as

as the *Pulv. Angel.* which is a Compoſition of the *Precip.* Powder and burnt Alum, eats deeper, I think it preferable to the *Precipitate* alone.

It is but ſeldom that theſe inveterate *Fungus*'s appear on an Ulcer; but it is very uſual for thoſe of a milder kind to riſe, which may often be made to ſubſide with Preſſure, and the uſe of mild Eſcharoticks; however if the Aſpect of the Sore be white and ſmooth, as happens in Ulcers with a Dropſy, and often in young Women with Obſtructions, 'twill anſwer no purpoſe to waſte the Excreſcencies 'till the Conſtitution is repair'd, when moſt probably they will ſink without any Aſſiſtance. In Ulcers alſo where the ſubjacent Bone is carious, great Quantities of looſe flabby Fleſh will grow up above the Level of the Skin; but as the Caries is the Cauſe of the Diſorder, 'twill be in vain to expect a Cure of the Excreſcence, 'till the rotten Part of the Bone is remov'd, and every Attempt with Eſcharoticks will be only a Repetition of Pain to the Patient, without any Advantage. In ſcrophulous Ulcers of the Glands, and indeed of almoſt every part, this Diſorder is very common; but before Trial of the ſevere Eſcharoticks, I would recommend the uſe of the ſtrong *Precipitate* Medicine, with Compreſs as tight as can be bore

without Pain, which I think generally keeps it under.

When the Excreſcence is cancerous, and does not riſe from a large Cancer, but only from the Skin itſelf, it has been uſual to recommend the actual Cautery; though I have found it more ſecure, to cut away quite underneath, and dreſs afterwards with eaſy Applications; but the Caſes where either of theſe Methods are practicable, occur very rarely. As to the Treatmeut of incurable cancerous Ulcerations, after much Trial, Surgeons have at laſt diſcovered that what gives the moſt Eaſe to the Sore, is the moſt ſuitable Application, and therefore the uſe of Eſcharoticks is not to be admitted on any Pretence whatſoever; nor in thoſe Parts of a Cancer that are corroded into Cavities, muſt the *Precipitate* be made uſe of to procure Digeſtion, or promote the Separation of the Sloughs. The beſt way therefore is to be guided by the Patient what Medicine to continue, after having try'd three or four, if the firſt or ſecond don't agree with him. Thoſe uſually preſcribed are Preparations from Lead, but what I have found moſt beneficial, have been ſometimes dry Lint alone, when it does not ſtick to the Cancer; at other times Lint Doſſils ſpread with *Baſilicon* or *Cerat. de Lapid.*

Lapid. Calam. and oftener than either with a *Cerate* made of Oil and Wax, or the *Sperm. Cet.* Ointment; and over all a Pledgit of Tow ſpread with the ſame. Embrocating the neighbouring Skin and Edges of it with Milk, is of ſervice; but the chief good is to be acquir'd by Diet, which ſhould be altogether of Milk, and things made of Milk, though Herbage may be admitted alſo. Iſſues in the Shoulders or Thighs do alſo alleviate the Symptoms, and Manna with the purging Waters, once, or perhaps twice a week, will ſerve to keep the body cool. All methods more violent generally exaſperate Cancers, and are to be rejected in favour of this, which is ſometimes amazing in its effects, not only procuring eaſe, but lengthening Life.

When Ulcers or Abſceſſes are accompanied with Inflammation and Pain, they are to be aſſiſted with Fomentations made of ſome of the dry Herbs, ſuch as *Roman* Wormwood, Bay-leaves, and Roſemary; and when they are very putrid and corroſive, which circumſtances give them the name of Foul Phagædenick Ulcers, ſome Spirits of Wine ſhould be added to the Fomentation, and the Bandage be alſo dipt in Brandy or Spirits of Wine, obſerving in theſe caſes where there is much

pain always to apply gentle Medicines 'till it is remov'd.

As to the frequency of dreſſing and fomenting, I think it may be laid down for a Rule in all Sores, that where the Diſcharge is ſanious, and corroſive, twice a-day is not too much; if the Matter be not very putrid and thin, once will ſuffice. When the pain and inflammation are exceſſive, bleeding and other evacuations will often be ſerviceable, and above all things, Reſt and a horizontal Poſition; which laſt circumſtance is of ſo great importance to the cure of Ulcers of the Legs, that unleſs the Patient will conform to it ſtrictly, the skill of the Surgeon will often avail nothing; for as the indiſpoſition of theſe Sores is in ſome meaſure owing to the gravitation of the Humours downwards, it will be much more beneficial to lie along than ſit upright, though the Leg be laid on a Chair, ſince even in this poſture they will deſcend with more force than if the Body was reclin'd.

In Ulcers of the Legs accompany'd with Varixes or Dilatations of the Veins, the method of Treatment will depend upon the other circumſtances of the Sore, for the Varix can only be aſſiſted by the application of

of Bandage, which muſt be continued a conſiderable time after the cure; the neateſt Bandage is the ſtreight Stocking, which is particularly ſerviceable in this caſe, though alſo if the Legs are oedematous, or if after the healing of the Ulcers, they ſwell when the Patient gets up, it may be wore with ſafety and advantage. There are inſtances of one Vein only being varicous, which when it happens may be deſtroy'd by tying it above and below the Dilatation, as in an Aneuryſm; but this Operation ſhould only be practiſed where the Varix is large and painful.

ULCERS of many Years ſtanding are very difficult of cure, and in old people the cure is often dangerous, frequently exciting an Aſthma, a Diarrhœa, or Fever, which deſtroys the Patient unleſs the Sore break out again, ſo that it is not altogether adviſeable to attempt the abſolute cure in ſuch caſes, but only the reduction of them into better order, and leſs compaſs, which if they be not malignant, is generally done with reſt, and proper care. The cure of thoſe in young people may be undertaken with more ſafety, but we often find it neceſſary to raiſe a Salivation to effect it, though when compleated it does not always laſt, ſo that the proſpect of cure in ſtubborn

old Ulcers at any time of life, is but indifferent. In all theſe caſes however it is proper to purge once or twice a-week with *Calomel*, if the Patient can bear it, and to make an Iſſue when the Sore is almoſt healed, in order to continue a diſcharge the conſtitution has been ſo long habituated to, and prevent its falling upon the Cicatrix, and burſting out again in that place.

When an Ulcer or Abſceſs has any Sinuſes or Channels opening and diſcharging themſelves into the Sore, they are call'd ſinuous Ulcers, theſe Sinuſes, if they continue to drain a great while, grow hard in the ſurface of their cavity, and then are termed Fiſtulæ, and the Ulcer a fiſtulous Ulcer; alſo if Matter be diſcharged from any cavity, as thoſe of the Joints, the Abdomen, *&c.* the opening is call'd a ſinuous Ulcer, or a Fiſtula.

The Treatment of theſe Ulcers depends on a variety of circumſtances: If the Matter of the Sinus be thick, ſtrict Bandage and Compreſs will ſometimes bring the oppoſite ſides of the Sinus to a re-union; if the Sinus grows turgid in any part, and the Skin thinner, ſhewing a diſpoſition to break, the Matter muſt be made to puſh more againſt that part, by plugging it up with a Tent, and then a Counter-

Counter-opening muſt be made, which proves often ſufficient for the whole Abſceſs, if it be not afterwards too much tented, which locks up the Matter, and prevents the healing, or too little, which will have the ſame effect: for dreſſing quite ſuperficially does ſometimes prove as miſchievous as Tents, and for nearly the ſame reaſon, ſince ſuffering the outer Wound to contract into a narrow Orifice before the internal one is incarned, does almoſt as effectually lock up the Matter as a Tent: To preſerve then a medium in theſe caſes, a hollow Tent of Lead or Silver may be kept in the Orifice, which at the ſame time that it keeps it open gives vent to the Matter. The Abſceſſes where the Counter-openings are made moſt frequently are thoſe of compound Fractures, and the Breaſt, but the latter do oftener well without Dilatation, than the former, though it muſt be perform'd in both, if practicable, the whole length of the Abſceſs, when after ſome trial the Matter does not leſſen in quantity, and the ſides of it grow thinner; and if the Sinuſes be fiſtulous, there is no expectation of cure without Dilatation: There are alſo a great many ſcrophulous Abſceſſes of the Neck, that ſometimes communicate by Sinuſes running under large Indurations,

tions, in which inſtances Counter-openings are adviſeable, and generally anſwer without the neceſſity of dilating the whole length; and indeed there are few Abſceſſes in this Diſtemper that ſhould be open'd beyond the thinneſs of the Skin: When Abſceſſes of the Joints diſcharge themſelves, there is no other method of treating the Fiſtula but keeping it open with the Cautions already laid down, 'till the Cartilages of the extremities of the Bones being corroded, the two Bones ſhoot into one another, and form an Anchyloſis of the Joint, which is the moſt uſual cure of Ulcers in that part.

GUN-SHOT Wounds often become ſinuous Ulcers, and then are to be conſider'd in the ſame light as thoſe already deſcribed; though Surgeons have been always inclin'd to conceive there is ſomething more myſterious in theſe Wounds than any others; but their terribleneſs is owing to the violent Contuſion and Laceration of the parts, and often to the admiſſion of extraneous Bodies into them, as the Bullet, Splinters, Cloaths, *&c.* and were any other force to do the ſame thing, the effect would be exactly the ſame as when done by Fire-Arms. The Treatment of theſe Wounds conſiſts in removing the extraneous Body as ſoon as poſſible, to which end the Patient muſt be put into the

the ſame poſture as when he received the Wound: if it cannot be taken away by extraction, or cutting ſafely upon it, it muſt be left to Nature to work out, and the Wound dreſs'd ſuperficially, for we muſt not expect, that if it be kept open with Tents, the Bullet, *&c.* will return that way, and there is hardly any caſe where Tents are more pernicious than here, becauſe of the violent Tenſion and Diſpoſition to Gangrene that preſently enſue. To guard againſt the Mortification in this and all other violent contus'd Wounds, 'twill be proper to bleed the Patient immediately, and ſoon after give a Clyſter; the part ſhould be dreſs'd with ſoft Digeſtives, and the Compreſs and Roller apply'd very looſe, being firſt dip'd in Brandy or Spirits of Wine: The next time the Wound is open'd, if it be dangerous, the ſpirituous Fomentation may be employ'd, and after that continued 'till the danger is over. If a Mortification comes on, the applications for that Diſorder muſt be us'd: In gun-ſhot Wounds it ſeldom happens that there is any effuſion of Blood unleſs a large Veſſel is tore, but the Bullet makes an Eſchar, which uſually ſeparates in a few days, and is follow'd with a plentiful diſcharge; but when the Wound is come to

this

this period, it is managable by the Rules already laid down.

When an Ulcer with looſe rotten Fleſh diſcharges more than the ſize of it ſhould yield, and the Diſcharge is oily and ſtinking, in all probability the Bone is carious, which may eaſily be diſtinguiſhed by running the Probe through the Fleſh, and if ſo, it is call'd a carious Ulcer: The cure of theſe Ulcers depends principally upon the removal of the rotten part of the Bone, without which it will be impoſſible to heal, as we ſee ſometimes in little Sores of the lower Jaw, which taking their riſe from a rotten Tooth will not admit of cure 'till the Tooth is drawn. Thoſe Caries that happen from the Matter of Abſceſſes lying too long upon the Bone, are moſt likely to recover: Thoſe of the Pox very often do well, becauſe that Diſtemper fixes ordinarily upon the middle, and outſide of the denſeſt Bones, which admit of Exfoliation; but thoſe produced by the Evil, where the whole extremities or ſpongy parts of the Bone are affected, are exceeding dangerous, though all inlarged Bones are not neceſſarily carious, and there are Ulcers ſometimes on the Skin that covers them, which do not communicate with the Bone, and conſequently do well without Exfoliation.

In

In Ulcers and the Pox the method of cure is by applying a Cauſtick of the ſize of the ſcale of the Bone that is to be exfoliated, and after having laid it bare, to wait 'till ſuch time as the carious part can, without violence, be ſeparated, and then heal the Wound: I caution againſt violence becauſe the little jagged bits of Bone that would be left, if we attempted Exfoliation, before the piece was quite looſe and diſengaged from the ſound Bone, would form little Ulcerations, and very much retard the Cure. In order to quicken the Exfoliation, there have been ſeveral Applications devis'd, but that which has been moſt us'd in all Ages has been the actual Cautery, with which Surgeons burn the naked Bone every day, or every other day, to dry up, as they ſay, the Moiſture, and by that means procure the ſeparation; but as this Practice is never of great ſervice, and always cruel and painful, it is now pretty much exploded: indeed from conſidering the appearance of a Wound, when a ſcale of Bone is taken out of it, there is hardly any queſtion to be made, but burning retards rather than haſtens the Separation, for as every ſcale of a carious Bone is flung off by new Fleſh generated between it and the ſound Bone, whatever would prevent the

the growth of theſe Granulations would alſo in a degree prevent the Exfoliation, which muſt certainly be the effect of a red-hot Iron applied ſo cloſe to it; though the circumſtances of carious Bones, and their diſpoſition to ſeparate, are ſo different one from another, that it is hardly to be gathered from experience, whether they will ſooner exfoliate with or without the aſſiſtance of Fire: for ſometimes, in both methods, an Exfoliation is not procur'd in a twelvemonth, and at other times it happens in three weeks, or a month; nay I have, upon cutting out the Eſchar made by the Cauſtick, taken away at the ſame time a large Exfoliation: However if it be only uncertain whether the actual Cautery is beneficial or no, the cruelty that attends the uſe of it ſhould intirely baniſh it out of Practice. It is often likewiſe in theſe caſes employ'd to keep down the fungous Lips that ſpread upon the Bone, but it is much more painful than the Eſcharotick Medicines; though there will be no need of either, if a regular Compreſs be kept on the Dreſſings; or at worſt, if a flat piece of the prepared Sponge, of the ſize of the Ulcer, be roll'd on with a tight Bandage, it will ſwell on every ſide, and dilate the Ulcer without any pain.

SOME

SOME Caries of the Bones are so very shallow, that they crumble insensibly away, and the Wound fills up; but in these cases it is proper to scrape the Bone with a Rugine, and so likewise Bones that will neither exfoliate or granulate, must be scrap'd down to the quick. In the Evil the Bones of the *Carpus* and *Tarsus* are often affected, but their Sponginess is the reason they are but seldom cured; so that when these, or indeed the extremities of any of the Bones are carious through their Substance, it is adviseable to amputate; tho' there are Instances where, after long dressing down, the Splinters, and sometimes the whole Substance of the small Bones, have work'd away, and a healthy habit of Body coming on, the Ulcer has healed; but these are so rare, that no great dependance is to be laid on such an event. The Dressings of carious Bones, if they are stinking, may be Dossils dipt in the Tincture of Myrrh, otherwise those of dry Lint are easiest, and keep down the edges of the Ulcer better than any other gentle Applications.

BURNS are generally esteem'd a distinct kind of Ulcers, and have been treated with a greater variety of Applications, than any other species of Sore, every Author having invented some new

new Medicine to fetch out the Fire, as they imagine; and indeed the Conceit of a quantity of Fire remaining in the part burnt, has occaſion'd the Trial of very whimſical and painful Remedies; though people who talk thus ſeriouſly of Fire in Wounds, do not think of any remaining in a Stick that is half burnt, and ceaſes to burn any farther, notwithſtanding the reaſoning is the ſame in Burns of the Fleſh, and Burns of a Stick.

When Burns are very ſuperficial, not raiſing ſuddenly any Veſication, Spirits of Wine are ſaid to be the quickeſt Relief; but whether they are more ſerviceable than Embrocations with Linſeed-Oil, I am not certain, though they are uſed very much by ſome Perſons whoſe Trade ſubjects them often to this Misfortune. If the Burn excoriates, I think it is eaſieſt to roll the part up gently with Bandages dipt in Linſeed-Oil, or a mixture of *Unguent. Flor. Sambu.* with the Oil: When the Excoriations are very tender, dropping warm Milk upon them every Dreſſing is very comfortable; or if the Patient can bear to have Flannels wrung out of it, applied hot, it may be ſtill better: If the Burn has form'd Eſchars, they may be dreſs'd with *Baſilicon*, though generally Linſeed-Oil alone is eaſier, and

and in theſe Sores whatever is the eaſieſt Medicine will be the beſt Digeſtive. I have ſometimes found it neceſſary to apply different Ointments to Burns, where the Aſpect has been nearly the ſame, and upon changing them the Patient has complain'd of great pain; ſo that we are oblig'd ſometimes to determine what is proper from Trial. The moſt likely things to ſucceed at firſt are, the Linſeed-Oil, *Ungt. Flor. Samb. Ungt. Baſilicon*, and a Cerate of Wax and Oil, and afterwards the *Cerate de Lapid. Calam. Ungt. Rub. Deſiccat. Ungt. Sperm. Cet.* the Nutritum with but little Vinegar in it, or perhaps when the *Fungus* riſes, dry Lint. There is great care neceſſary to keep down the *Fungus* of Burns, and heal the Wounds ſmooth, to which end the edges ſhould be dreſs'd with Lint dipt in *Aqu. Vitriol.* and dry'd afterwards, or they may be touch'd with the Vitriol-Stone, and the Dreſſings be repeated twice a-day. There is alſo greater danger of Contractions from Burns after the cure, than from other Wounds, to obviate which, Embrocations of Neats-foot Oil, and Bandage with Paſte-boards, to keep the part extended, are abſolutely neceſſary, where they can be applied.

The EXPLANATION.

A. A Director by which to guide the Knife in the opening of Abſceſſes that are burſt of themſelves, or firſt punctur'd with a Lancet. This Inſtrument ſhould be made of Silver which may be bent and accommodated better to the Direction of the Cavity than Steel or Iron. It is uſually made quite ſtrait, but that Form prevents the Operator from holding it firm while he is cutting, upon which account I have given mine the ſhape here repreſented. The manner of uſing it is, by paſſing the Thumb through the Ring, and ſupporting it with the Fore-finger, while the ſtrait-edged Knife is to ſlide along the Groove with its Edge upwards, towards the Extremity of the Abſceſs.

B. The ſtrait-edged Knife, proper for opening Abſceſſes with the aſſiſtance of a Director; but which, in few other reſpects, is preferable to the round-edged Knife.

C. A crooked Needle, with its convex and concave Sides ſharp: This is us'd only in the Suture of the Tendon, and is made thin, that but few of the Fibres of ſo ſlender a Body as a Tendon, may be injur'd in the paſſing of it. This Needle is large enough for the ſtitching the *Tendo Achillis.* *D.* The

D. The largeſt crooked Needle neceſſary for the tying of any Veſſels, and ſhould be us'd with a Ligature of the ſize of that I have threaded it with, in taking up the Spermatick Veſſels in Caſtration, or the Crural and Humeral Arteries in Amputation. This Needle may alſo be us'd in ſewing up deep Wounds.

E. A crooked Needle and Ligature of the moſt uſeful ſize, being not much too little for the largeſt Veſſels, nor a great deal too big for the ſmalleſt; and therefore in the taking up of the greateſt number of Veſſels in an Amputation, is the proper Needle to be employed. This Needle alſo is of a convenient ſize for ſewing up moſt Wounds.

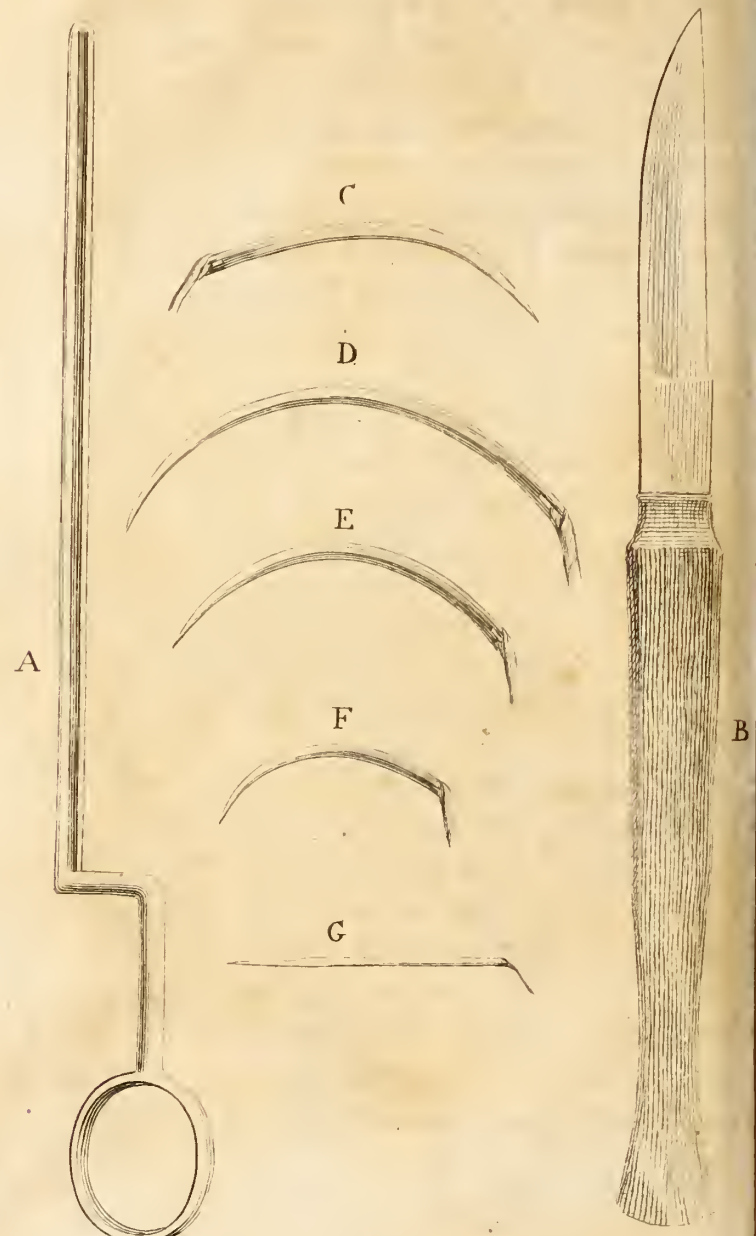
F. A ſmall crooked Needle and Ligature for taking up the leſſer Arteries, ſuch as thoſe of the Scalp, and thoſe of the Skin that are wounded in opening Abſceſſes.

Great care ſhould be taken by the Makers of theſe Needles to give them a due Temper, for if they are too ſoft, the force ſometimes exerted to carry them through the Fleſh will bend them; if they are too brittle, they ſnap; both which Accidents may happen to be terrible Inconveniencies if the Surgeon is not provided with a ſufficient number of them. It is of great Importance alſo to give them.

the Form of part of a Circle, which makes them paſs much more readily round any Veſſel, than if they were made partly of a Circle and partly of a ſtrait Line, and in taking up Veſſels at the Bottom of a deep Wound is abſolutely neceſſary, it being impracticable to turn the Needle with a ſtrait Handle, and bring it round the Veſſel when in that ſituation. The convex Surface of the Needle is flat, and its two Edges are ſharp. Its concave ſide is compos'd of two Surfaces, riſing from the Edges of the Needle, and meeting in a Ridge or Eminence, ſo that the Needle has Three ſides. This Eminence of the Subſtance of the Needle on its Inſide ſtrengthens it very much, but is not continued the whole length of the Needle, which is flat towards the Eye; ſome are made round in this part, but they cannot be held ſteady between the Finger and Thumb, and are therefore unfit for uſe. There have been Needles made with the Eminence on the convex ſide, and a flat Surface on the concave ſide, but I do not ſee any particular advantage in that Structure. The beſt Materials for making Ligatures are the Flaxen Thread that Shoemakers uſe; which is ſufficiently ſtrong when four, ſix or eight of the Threads are twiſted together

ther and wax'd; and is not ſo apt to cut the Veſſels, as Threads that are finer ſpun.

G. A ſtrait Needle, ſuch as Glovers uſe, with a three-edged Point, uſeful in the uninterrupted Suture, in the Suture of Tendons, where the crooked one *C.* is not preferr'd, and in ſewing up dead Bodies.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TREATISE

OF THE

Operations *of SURGERY.*

CHAP. I.

Of *SUTURES.*

WHEN a Wound is recent, and the Parts of it are divided by a ſharp Inſtrument without any farther violence, and in ſuch manner that they may be made to approach each other, by being returned with the Hands, they will, if held in cloſe contact for ſome time, re-unite by Inoſculation, and cement like one

branch of a Tree ingrafted on another. To maintain them in this ſituation, ſeveral ſorts of Sutures have been invented, and formerly practis'd, but the number of them has of late been very much reduced. Thoſe now chiefly deſcribed are the interrupted, the Glover's, the quill'd, the twiſted, and the dry Sutures, but the interrupted and twiſted are almoſt the only uſeful ones, for the quill'd Suture is never preferable to the interrupted; the dry Suture is ridiculous in terms, ſince it is only a piece of Plaiſter apply'd in many different ways to reunite the Lips of a Wound: and the Glover's, or uninterrupted Stitch, which is recommended in ſuperficial Wounds to prevent the deformity of a Scar, does rather by the frequency of the Stitches occaſion it, and is therefore to be rejected in favour of a Compreſs and ſticking Plaiſter; the only Inſtance where I would recommend it, is in a Wound of the Inteſtine: the manner of making this Suture I ſhall deſcribe in the Chapter of the Gaſtroraphy.

FROM the Deſcription I have given of the ſtate of a Wound proper to be ſew'd up, it may be readily conceived, that Wounds are not fit ſubjects for Suture when there is either a Contuſion, Laceration, loſs of Subſtance, great Inflammation, difficulty of bringing the Lips into

into appoſition, or ſome extraneous Body inſinuated into them; though ſometimes a lacerated Wound may be aſſiſted with one or two Stitches. It has formerly been forbid to ſew up Wounds of the Head, but this Precaution is very little regarded by the Moderns, though the ill effects I have frequently ſeen from Matter pent up under the Scalp, and the great convenience there is of uſing Bandage on the Head, have convinc'd me that much leſs harm would be done, if Sutures were us'd in this part with more caution.

IF we ſtitch up a Wound that has none of theſe Obſtacles, we always employ the interrupted Suture, paſſing the Needle two, three, or four times, in proportion to the length of it, though there can ſeldom be more than three Stitches required.

THE method of doing it is this, the Wound being emptied of the grumous Blood, and your Aſſiſtant having brought the Lips of it together, that they may lie quite even; you carefully carry your Needle from without, inwards to the bottom, and ſo on from within, outwards; uſing the Caution of making the Puncture far enough from the edge of the Wound, leſt the Ligature ſhould tear quite through the Skin and Fleſh; this diſtance may be

be three or four tenths of an Inch: as many more Stitches as you ſhall make, will be only repetitions of the ſame Proceſs. The Threads being all paſſed, you begin tying them in the middle of the Wound, though if the Lips are held carefully together all the while, as they ſhould be, it will be of no great conſequence which is done firſt. The moſt uſeful kind of Knot in large Wounds is a ſingle one firſt, over this a little linnen Compreſs, on which is to be made another ſingle Knot, and then a Slip-knot, which may be looſened upon any Inflammation; but in ſmall Wounds there is no danger from the double Knot alone, without any Compreſs to tie it upon, and this is moſt generally practis'd. If an Inflammation ſhould ſucceed to any degree, looſening the Ligature only will not ſuffice, it muſt be cut through and drawn away, and the Wound be treated afterwards without any farther Suture. When the Wound is ſmall the leſs it is diſturbed by dreſſing the better, but in large ones there will ſometimes be a conſiderable Diſcharge, and if the Threads are not cautiouſly carried through the bottom of it, Abſceſſes will frequently enſue from the Matter being pent up underneath, and not finding iſſue. If no accident happens you muſt, after the

the Lips are firmly agglutinated, take away the Ligatures, and dreſs the Orifices they leave.

IT muſt be remembred that during the Cure, the Suture muſt be always aſſiſted by the application of Bandage if poſſible, which is frequently of the greateſt Importance, and that ſort of Bandage with two Heads, and a ſlit in the middle, which is by much the beſt, will in moſt caſes be found practicable.

THE twiſted Suture being principally employed in the Hare-Lip, I ſhall reſerve its deſcription for the Chapter on that Head.

CHAP. II.

Of the SUTURE *of* TENDONS.

WOUNDS of the Tendons are not only known to heal again, but even to admit of ſewing up like thoſe of the fleſhy parts, though they do not re-unite altogether in ſo ſhort a time. When a Tendon is partly divided, it is generally attended with an exceſſive Pain, Inflammation, *&c.* in conſequence of the remaining Fibres being ſtretch'd and forc'd by the action of the Muſcle, which neceſſarily will

will contract more, when ſome of its reſiſtance is taken away: To obviate this miſchief, it has been hitherto an indiſputable Maxim in Surgery, to cut the Tendon quite through, and immediately afterwards perform the Suture; but I do not think this Practice adviſeable, for though the diviſion of the Tendon affords preſent eaſe, yet the Flexion only of the Joint will have the ſame effect, if it be a Wound of a Flexor Tendon: Beſides, in order to ſew up the extremities of the Tendon when divided, we are obliged to put the Limb in ſuch a ſituation, that they may be brought into Contact, and even to ſuſtain it in that poſture to the finiſhing of the Cure: If then the poſture will lay the Tendon in this poſition, we can likewiſe keep it ſo without uſing the Suture, and are more ſure of its not ſlipping away, which ſometimes happens from any careleſs motion of the Joint, when the Stitches have almoſt wore through the Lips of the Wound; on which account I would by all means adviſe in this caſe, to forbear the Suture, and only favour the ſituation of the extremities of the Tendon.

IF it ſhould be ſuggeſted that for want of a farther ſeparation, there will not be Inflammation enough to produce an Adheſion of the

the ſeveral parts of the Wound, which is particularly mention'd as the Property of this ſort of Cicatrix, though it is likewiſe of all others: I ſay, that the Inflammation will be in proportion to the Wound, and a ſmall Wound is certainly more likely to recover than a large one. If it ſhould be objected that keeping the Limb in one poſture the whole time of the Cure, will bring on a Contraction of the Joint, the objection is as ſtrong againſt the Suture; and now I am upon this Subject, I would adviſe Surgeons to be leſs apprehenſive of Contractions after Inflammations of the Tendons, than Practice ſhews they are: For perhaps there is hardly any one Rule has done more miſchief than that of guarding againſt this Conſequence, and I would lay it down as a method to be purſued at all times, to favour the Joint in theſe Diſorders, and keep it in that poſture we find moſt eaſy for the Patient. The riſque of an immoveable Contraction in ſix weeks is very little, but the endeavour to avoid it has been the loſs of many a Limb in half the time.

BUT when the Tendon is quite ſeparated, and the ends are withdrawn from one another, having brought them together with your Fingers, you may ſew them with a ſtrait triangular

gular pointed Needle, paſſing it from without inwards, and from within outwards, in a ſmall Tendon, about three tenths of an Inch from their extremities, and in the *Tendo Achillis* near half an Inch.

SOME Surgeons for fear the Muſcle ſhould contract a little, notwithſtanding all our care, adviſe not to bring the ends of the Tendon into an exact Appoſition, but to lay one a little over the other, which allowing for the contraction that always enſues in ſome degree, the Tendon will become a ſtrait Line, and not be ſhorten'd in its length. As the Wound of the Skin will be nearly tranſverſe I would not have it rais'd to expoſe more of the Tendon, but rather ſew'd up with it, which will conduce to the ſtrength of the Suture. The Knot of the Ligature is to be made as in other Wounds, and the Dreſſings the ſame: There is a ſort of thin crooked Needle that cuts on its concave and convex ſides, which is very handy in the Suture of large Tendons, and to be preferr'd to the ſtrait one. During the Cure the Dreſſings muſt be ſuperficial, and the parts kept ſteady with Paſte-board and Bandage: The ſmall Tendons re-unite in three weeks, but the *Tendo Achillis* requires ſix at leaſt.

CHAP.

CHAP. III.

Of the GASTRORAPHY.

THE account of this Operation has employ'd the Ingenuity of many Surgical Writers, and occaſioned much debate about the proper Rules for performing it, and yet what makes the greateſt part of the deſcription can hardly ever happen in Practice, and the reſt but very ſeldom. I have been told that *Du Verney*, who was the moſt eminent Surgeon in the *French* Army a great many Years during the Wars, and faſhion of Dueling, declar'd he never had once an opportunity of practiſing the Gaſtroraphy, as that Operation is generally deſcribed; for though the word in ſtrictneſs of etymology, ſignifies no more than ſewing up any Wound of the Belly, yet in common acceptation it implies that the Wound of the Belly is complicated with another of the Inteſtine. Now the ſymptoms laid down for diſtinguiſhing when the Inteſtine is wounded, do not with any certainty determine it to be wounded only in one place, which want of Information, makes it

it abſurd to open the *Abdomen* in order to come at it; if ſo, the Operation of ſtitching the Bowels can only take place, where they fall out of the *Abdomen*, and we can ſee where the Wound is, or how many Wounds there are: If it happens that the Inteſtines fall out unwounded, the Buſineſs of the Surgeon is to return them immediately without waiting for ſpirituous, or emollient Fomentations; and in caſe they puff up ſo, as to prevent their reduction by the ſame Orifice, you may with a Knife or Probe-Sciſſars dilate it ſufficient for that purpoſe, or even prick them to let out the Wind, laying it down for a Rule in this, and all Operations where the *Omentum* protrudes, to treat it in the manner that I ſhall deſcribe in the Chapter on the *Bubonocele*.

UPON the ſuppoſition of the Inteſtine being wounded in ſuch a manner as to require the Operation, for in ſmall Punctures it is not neceſſary; the method of doing it may be this: Taking a ſtrait Needle with a ſmall Thread, you lay hold of the Bowel with your left hand, and ſew up the Wound by the Glover's Stitch, that is, by paſſing the Needle through the Lips of the Wound, from within outwards all the way, ſo as to leave a length of Thread at both ends, which are to hang out of the Inci-

Inciſion of the *Abdomen*; then carefully making the interrupted Suture of the external Wound, you pull the Bowel by the ſmall Threads into contact with the *Peritonæum*, for the more readily uniting afterwards by Adheſion with it; though I think it would be more ſecure to paſs the Threads with the ſtrait Needle through the lower edges of the Wound of the *Abdomen*, which would more certainly hold the Inteſtine in that ſituation. In about ſix days it is ſaid the Ligature of the Inteſtine will be looſe enough to draw away, which muſt be done without great force; in the Interim the Wound is to be treated with ſuperficial Dreſſings, and the Patient to be kept very ſtill and low.

CHAP. IV.

Of the BUBONOCELE.

WHEN the Inteſtine or *Omentum* falls out of the *Abdomen* into any Part, the Tumour in general is known by the Name of *Hernia*, which is farther ſpecified either from the difference of Situation, or the nature of its Contents. When the Inteſtine or *Omentum* falls

through the Navel, 'tis call'd a *Hernia Umbilicalis*, or *Exomphalos*; when through the Rings of the Abdominal Muſcles into the Groin, *Hernia Inguinalis*; or if into the *Scrotum*, *Scrotalis:* Theſe two laſt, though the firſt only is properly ſo call'd, are known by the Name of *Bubonocele*. When they fall under the *Ligamentum Fallopii*, through the ſame Paſſage that the *Iliac* Veſſels creep into the Thigh, 'tis call'd *Hernia Cruralis*. With regard to the Contents characteriſing the Swelling, it is thus diſtinguiſhed: If the Inteſtine only is fall'n, it becomes an *Enterocele*; if the *Omentum* (*Epiploon*) *Epiplocele*; and if both, *Entero-Epiplocele*. There is beſides theſe another kind of *Hernia* mention'd and deſcrib'd by the Moderns, when the Inteſtine or *Omentum* is inſinuated between the Interſtices of the Muſcles, in different Parts of the Belly: This *Hernia* has derived its name from the Place affected, and is call'd the *Hernia Ventralis*.

ALL the Kinds of *Hernia*'s of the Inteſtines and *Omentum*, are owing to a preternatural Dilatation of the particular Orifices through which they paſs, and not to a Laceration of them, which laſt Opinion however has prevailed ſo much as, by way of eminence, to give name to the Diſorder, which is known

more

more by that of Rupture, than any of thoſe I have mentioned; on which account I ſhall beg leave to make uſe of it myſelf.

THE Rupture of the Groin, or *Scrotum*, is the moſt common Species of *Hernia*, and in young Children is very frequent, but it rarely happens in Infancy that any miſchiefs ariſe from it. For the moſt part the Inteſtine returns of it ſelf into the Cavity of the *Abdomen*, whenever the Perſon lies down, at leaſt a ſmall degree of Compreſſion will make it. To ſecure the Inteſtine when returned into its proper place, there are Steel Truſſes now ſo artfully made, that by being accommodated exactly to the Part, they perform the Office of a Bolſter, without galling, or even ſitting uneaſy on the Patient. Theſe Inſtruments are of ſo great ſervice, that were people who are ſubject to Ruptures always to wear them, I believe very few would die of this Diſtemper, ſince it often appears, upon enquiry, when we perform the Operation for the *Bubonocele*, that the neceſſity of the Operation is owing to the neglect of wearing a Truſs.

IN the Application of a Truſs to theſe kinds of Swellings, a great deal of judgment is ſometimes neceſſary, and for want of it we daily ſee Truſſes put even on *Bubo*'s, indurated Teſ-

ticles, *Hydrocele*'s, *&c.* But for the *Hernia*'s I have deſcribed, I ſhall endeavour to lay down two or three Rules, in order to guide more poſitively to the Propriety of applying or forbearing them.

IF there is a Rupture of the Inteſtine only, it is eaſily, when return'd into the *Abdomen*, ſupported by an Inſtrument; but if of the *Omentum*, notwithſtanding it may be return'd, yet I have never found the Reduction to be of much Relief; for the *Omentum* will lie uneaſy in a lump at the Bottom of the Belly, and upon removal of the Inſtrument drop down again immediately; upon which account ſeeing the little Danger and Pain there is in this kind of *Hernia*, I never recommend any thing but a Bag-Truſs, to ſuſpend the *Scrotum*, and prevent poſſibly by that Means the increaſe of the Tumour. The difference of theſe Tumours will be diſtinguiſhed by the Feel; that of the *Omentum* feeling flaccid and rumpled, the other more even, flatulent, and ſpringy.

SOMETIMES in a Rupture of both the Inteſtine and *Omentum*, the Gut may be reduced, but the *Omentum* will ſtill remain in the *Scrotum*, and when thus circumſtanced, moſt Surgeons adviſe a Bag-Truſs only, upon a Suppoſition that the Preſſure of a Steel one, by ſtopping

ſtopping the Circulation of the Blood in the Veſſels of the *Omentum*, would bring on a Mortification: But I have learnt, from a multitude of theſe Caſes, that if the Inſtrument be nicely fitted to the Part, it will be a Compreſs ſufficient to ſuſtain the Bowel, and at the ſame time not hard enough to injure the *Omentum*; ſo that when a great quantity of Inteſtine falls down, though it is complicated with a Deſcent of the *Omentum*, the Rupture will conveniently and ſafely admit of this Remedy.

THERE are ſome Surgeons, who to prevent the Trouble of wearing a Truſs, when the Inteſtine is reduced, deſtroy the Skin over the Rings of the Abdominal Muſcles with a Cauſtick of the ſize of a half Crown-piece, and keep their Patients in Bed 'till the Cure of the Wound is finiſh'd; propoſing by the Stricture of the Cicatrix to ſupport it in the *Abdomen* for the future: But by what I have ſeen of this Practice, the event, though often ſucceſsful, is not anſwerable to the Pain and Confinement; for if after this Operation the Inteſtine ſhould again fall down, which ſometimes happens, there would be much more danger of a Strangulation than before the Scar was made.

I HAVE as yet conſidered the Rupture as moveable; but it happens frequently that the Inteſtine, after it has paſs'd the Rings of the Muſcles, becomes inflam'd, which inlarging the Tumour, prevents the Return of it into the *Abdomen*, and becoming every moment more and more ſtrangled, it ſoon tends to a Mortification, unleſs we dilate the Paſſages through which it is fallen, with ſome Inſtrument, to make room for its return, which Dilatation is the Operation for the *Bubonocele*.

IT rarely happens that Patients ſubmit to this Inciſion before the Gut is mortified, and it is too late to do ſervice; not but that there are Inſtances of People ſurviving ſmall Gangrenes, and even perfectly recovering afterwards. I my ſelf have been an Eye-witneſs of the Cure of two Patients who ſome time after the Operation, when the Eſchar ſeparated, diſcharged their Fæces through the Wound, and continued to do ſo for a few Weeks in ſmall quantities, when at length the Inteſtine adhered to the external Wound, and then was fairly healed.

IN Mortifications of the Bowels, when fallen out of the *Abdomen* into the Navel, it is not very uncommon for the whole gangren'd Inteſtine to ſeparate from the ſound one, ſo that

that the Excrement muſt neceſſarily ever after be diſcharged at that Oriſice: There are likewiſe a few Inſtances where the Rupture of the *Scrotum* has mortified and become the *Anus*, the Patient doing well in every other reſpect. Theſe Caſes however are only mention'd to furniſh Surgeons with the Knowledge of the poſſibility of ſuch Events, and not to miſlead them ſo far as to make favourable Inferences with regard to Gangrenes of the Bowels, which generally are mortal.

BEFORE the Performance of the Operation for the *Bubonocele*, which is always to be done in extremity of Danger, the milder Methods are to be tried; theſe are, ſuch as will conduce to ſooth the Inflammation; for as to the other Intent of ſoftening the Excrements, I believe it is much to be queſtioned, whether there can be any of that degree of Hardneſs in the *Ilium*, which is generally the Bowel diſeaſed, as to form the Obſtruction; and in fact, thoſe Operators who have unluckily wounded the Inteſtine, have proved, by the thin Diſcharge of Fæces which has followed upon the Inciſion, that the Induration we feel is the Tenſion of the Parts, and not the hardened Lumps of Excrement.

PERHAPS, except the Pleuriſy, no Diſorder is more immediately relieved by plentiful Bleeding than this; Clyſters repeated one after another three or four times, if the firſt or ſecond are either retained too long, or immediately return'd, prove very efficacious; theſe are ſerviceable, not only as they empty the great Inteſtines of their Excrements and Flatulencies, which laſt are very dangerous, but they likewiſe prove a comfortable Fomentation, by paſſing through the Colon all around the *Abdomen*. The *Scrotum* and Groin muſt, during the ſtay of the Clyſter, be bath'd with warm Stoops wrung out of a Fomentation, and with theſe on the Part you muſt attempt to reduce the Rupture: For this purpoſe let your Patient be laid on his Back, ſo that his Buttocks may be conſiderably above his Head; the Bowels will then retire towards the Diaphragm, and give way to thoſe which are to be puſh'd in. If after endeavouring two or three Minutes, you do not find Succeſs, you may ſtill repeat the Trial: I have ſometimes, at the end of a Quarter of an Hour, returned ſuch as I thought deſperate, and which did not ſeem to give way in the leaſt, 'till the moment they went up; however this muſt be practis'd with caution, for too much rough handling will be pernicious.

IF,

IF, notwithſtanding theſe means, the Patient continues in very great torture, though not ſo bad as to threaten an immediate Mortification, we muſt apply ſome ſort of Pultice to the *Scrotum*; that which I uſe in this Caſe is, equal parts of Oil and Vinegar made into a proper conſiſtence with Oatmeal: After ſome few hours the Fomentation is to be repeated, and the other Directions put in practice; and if theſe do not ſucceed, I am inclin'd to think it adviſeable to prick the Inteſtine in five or ſix Places with a Needle, as recommended by *Peter Lowe*, an old *Engliſh* Writer, who ſays, He has often experienced the good Effects of this Method in the inguinal Hernia, when all other Means have fail'd.

AFTER all, ſhould the Pain and Tenſeneſs of the Part continue, and Hiccoughs and Vomitings of the Excrements ſucceed, the Operation muſt take place; for if you wait 'till a languid Pulſe, cold Sweats, ſubſiding of the Tumour, and Emphyſematous Feel come on, it will be moſt likely too late, as they are pretty ſure ſymptoms of a Mortification.

To conceive rightly of the Occurrences in this Operation, it muſt be remembered that in every Species of Rupture the *Peritonæum* falls down with whatever makes the *Hernia*, for the

the contents of the *Abdomen* being immediately envelop'd in this Membrane, they cannot puſh through any Orifice, but they muſt likewiſe carry a part of it along with them: So that in the *Bubonocele*, the Situation of the Tumour will be in the Cavity of the *Scrotum*, upon the *Tunica Vaginalis* and Spermatick Cord.

THE beſt way of laying your Patient will be on a Table about three Foot four Inches high, letting his Legs hang down; then properly ſecuring him, you begin your Inciſion above the Rings of the Muſcles, beyond the extremity of the Tumour, and bring it down about half the length of the *Scrotum*, through the *Membrana adipoſa*, which will require very little trouble to ſeparate from the *Peritonæum* (call'd *the Sack of the Hernia*) and conſequently will expoſe the Rupture for the farther Proceſſes of the Operation; but I cannot help once more recommending it as a thing of great conſequence, to begin the external Inciſion high enough above the Rings, ſince there is no danger in that part of the Wound: and for want of the room this Inciſion allows, the moſt expert Operators are ſometimes tedious in making the Dilatation. If a large Veſſel be open'd by the Inciſion, it muſt be taken up before you proceed further.

WHEN

WHEN the *Peritonæum* is laid bare, you muſt cut through it carefully to avoid pricking the Inteſtines; though to ſay the truth, there is not quite ſo much danger of this Accident as is repreſented, for generally ſpeaking the quantity of Water ſeparated in the *Sack* of the *Peritonæum*, raiſes it from the Inteſtine, and prevents any ſuch miſchief. This diſcharge of Water which follows upon wounding the *Peritonæum*, and the Ignorance of the Structure of the *Tunica Vaginalis*, have made it ſo generally thought that Ruptures were received into the Cavity of that Tunick.

IT has lately been conſider'd by ſome as an Improvement in the Operation, to forbear wounding the *Peritonæum* and to return the *Sack* intire into the *Abdomen*, thinking by this means to make a firmer Cicatrix, and more ſurely to prevent a Relapſe for the future; but beſides that this Practice is not founded on Reaſon in the very particular it is recommended for, the ſeeming neceſſity there is of letting out the Waters that are frequently fœtid, of taking away the mortified Part of the *Omentum*, which we cannot come at without the Inciſion, and laſtly to leave an Opening for the iſſue of the Excrements out of the Wound, in caſe an Eſchar ſhould drop

drop from the Inteſtine, put out of diſpute, in my opinion, the Impropriety of this new Method.

THE *Peritonæum* being cut through, we arrive to its Contents, the nature of which will determine the next Proceſs; for if they be Inteſtine only, it muſt directly be reduced, but if there be any mortify'd *Omentum*, it muſt be cut off; in order to which it is adviſed to make a Ligature above the Part wounded, to prevent an Hæmorrhage, but it is quite needleſs, and in ſome meaſure pernicious, as it puckers up the Inteſtine, and diſorders its ſituation, if made cloſe to it: For my part I am very jealous that Wounds of the *Omentum* are dangerous, on which account I cannot paſs over this part of the Operation, without cautioning againſt cutting any of it away, unleſs it is certainly gangrened; and when that happens, I think it adviſeable to cut off only ſome of the mortify'd Part, and leave the reſt to ſeparate in the *Abdomen*, which may be done with as much ſafety, as leaving the ſame quantity below a Ligature.

WHEN the *Omentum* is remov'd, we next dilate the Wound, to do which with ſafety, an infinite number of Inſtruments have been invented; but in my opinon there is none we can

can uſe in this caſe with ſo good management as a Knife; and I have found my Finger in the Operation a much better defence againſt pricking the Bowels than a Director which I intended to employ; The Knife muſt be a little crooked and blunt at its extremity, like the end of a Probe. Some Surgeons perhaps may not be ſteady enough to cut dexterouſly with a Knife, and may therefore perform the Inciſion with Probe-Sciſſars, carefully introducing one Blade between the Inteſtine and circumference of the Rings, and dilating upwards. When the Finger and Knife only are employ'd, the manner of doing the Operation will be by preſſing the Gut down with the fore Finger, and carrying the Knife between it and the Muſcles, ſo as to dilate upwards about an Inch, which will be a Wound large enough.

THE Opening being made, the Inteſtine is gradually to be puſh'd into the *Abdomen*, and the Wound to be ſtitch'd up; for this purpoſe ſome adviſe the quill'd, and others the interrupted Suture to be paſs'd through the Skin and Muſcles; but as there is not ſo much danger of the Bowels falling out when a Dreſſing and Bandage are applied, and the Patient all the while kept upon his Back, but that it may be

be prevented by one or two ſlight Stitches through the Skin only, I think it by all means adviſeable to follow this Method, ſince the ſtricture of a Ligature in theſe tendinous Parts cannot but be dangerous.

HITHERTO in the deſcription of the *Bubonocele* I have ſuppos'd it looſe, or ſeparate in the *Sack* and *Scrotum*, but it happens ſometimes in an Operation, that we find not only an Adheſion of the outſide of the *Peritonæum* to the *Tunica Vaginalis*, and ſpermatick Veſſels, but likewiſe of ſome part of the Inteſtines to its internal Surface; and in this caſe there is ſo much confuſion that the Operator is often obliged to extirpate the Teſticle, in order to diſſect away and diſintangle the Gut, tho' if it can be done without Caſtration it ought: I believe however, this Accident happens rarely, except in thoſe Ruptures that have been a long time in the *Scrotum* without returning; in which caſe the difficulty and hazard of the Operation are ſo great, that unleſs urged by the ſymptoms of an inflamed Inteſtine, I would not have it undertaken. I have known two Inſtances of Perſons ſo uneaſy under the circumſtance of ſuch a load in their *Scrotum*, tho' not otherwiſe in pain, as to deſire the Operation, but the Event in both

both proved fatal; which I think ſhould make us cautious how we expoſe a Life for the ſake of a convenience only, and teach our Patients to content themſelves with a Bag-Truſs, when in this condition.

THE dreſſing of the Wound firſt of all may be with dry Lint, and afterwards as directed in the Introduction.

THE Operation of the *Bubonocele* in Women ſo exactly reſembles that perform'd on Men, that it requires no particular deſcription, only in them the Rupture is form'd by the Inteſtine or *Omentum* falling down through the Paſſage of the *Ligamentum Rotundum* into the Groin, or one of the *Labia Pudendi*; where cauſing the ſame ſymptoms as when obſtructed in the *Scrotum*, it is to be return'd by the Dilatation of that Paſſage.

CHAP. V.

Of the EPIPLOCELE.

THERE have been a few Inſtances where ſo great a quantity of the *Omentum* has fallen into the *Scrotum*, that by drawing the Stomach and Bowels downwards, it has excited

cited Vomitings, Inflammation, and the ſame train of Symptoms as happen in a *Bubonocele*; in which caſe the Operation of opening the *Scrotum* is neceſſary: The Inciſion muſt be made in the manner of that for the Rupture of the Inteſtine, and the ſame Rules obſerved with regard to the *Omentum*, that are laid down in the laſt Chapter. It is neceſſary alſo the Rings of the Muſcles ſhould be dilated, or otherwiſe, though you have taken away ſome of the mortify'd part of the *Omentum*, the reſt that is out of its place, and ſtrangled in the Perforation will gangrene alſo. The Wound is to be treated in the ſame manner as that after the Operation of the *Bubonocele*. What I have here deſcribed as an Inducement to the Operation, ſhould, by the Experience I have had, be the only one. There are a great many People who are ſo uneaſy with Ruptures, though they are not painful, that a little encouragement from Surgeons of Character will make them ſubmit to any means of Cure; but as I have ſeen two or three Patients, who were in every reſpect hale and ſtrong, die a very few days after the Operation, the event, though very ſurpriſing, ſhould be a Leſſon never to recommend this method of treating an *Epiplocele*, unleſs it is attended with Inflammation, *&c.*

CHAP.

CHAP. VI.

Of the HERNIA CRURALIS.

THIS Species of Rupture is the ſame in both Sexes, and form'd by the falling of the *Omentum* or Inteſtine, or both of them, into the Inſide of the Thigh, through the Arch made by the *Os Pubis*, and *Ligamentum Fallopii*, where the Iliac Veſſels and Tendons of the *Pſoas* and *Iliacus Internus* Muſcles paſs from the *Abdomen*. It is very neceſſary, Surgeons ſhould be aware of this Diſorder, which creates the ſame Symptoms as other Ruptures, and muſt firſt of all be treated by the ſame Methods: The manner of operating in the Reduction is alſo ſo nearly the ſame, with the difference only of dilating the Ligament inſtead of the Rings of the Muſcles, that it would be a mere Repetition of the Operation for the *Bubonocele* to give any Deſcription of it.

CHAP. VII.

Of the EXOMPHALOS.

THIS Rupture is owing to a Protruſion of the Inteſtine, or *Omentum*, or both of them, at the Navel, and rarely happens to be the Subject of an Operation; for though the caſe is common, yet moſt of them are gradually form'd from very ſmall Beginnings, and if they do not return into the *Abdomen* upon lying down, in all probability they adhere without any great Inconvenience to the Patient, 'till ſome time or other an Inflammation falls upon the Inteſtines, which ſoon brings on a Mortification, and Death, unleſs by great chance the mortified Part ſeparates from the ſound one, leaving its Extremity to perform the Office of an *Anus:* In this Emergency however I think it adviſeable to attempt the Reduction, if call'd in at the beginning, though the univerſal Adheſion of the *Sack* and its Contents, are a great Obſtacle to the Succeſs: The Inſtance in which it is moſt likely to anſwer, is, when the Rupture is owing to any Strain, or ſudden Jerk, and

is

is attended with thoſe Diſorders that follow upon the Strangulation of a Gut.

IN this Caſe, having tried all other means in vain, the Operation is abſolutely neceſſary, which may be thus performed: Make the Inciſion ſomewhat above the Tumour, on the left ſide of the Navel, through the *Membrana Adipoſa*, and then emptying the *Sack* of its Water, or mortified *Omentum*, dilate the Ring with the ſame crooked Knife, conducted on your Finger, as in the Operation for the *Bubonocele*; after this, return the Inteſtines and *Omentum* into the *Abdomen*, and dreſs the Wound without making any Ligature.

CHAP. VIII.

Of the HERNIA VENTRALIS.

THIS Tumour is ſeldom larger than a Walnut, and is a Diſeaſe not ſo common as to have been obſerved by many, but there are Caſes enough known to put a Surgeon upon enquiry after it, when the Patient is ſuddenly taken with all the Symptoms of a Rupture, without any appearance of one in the Navel, Scrotum, or Thigh: I have before defined this *Hernia* to be a Strangulation of the Gut, between ſome of the Interſtices of the Muſcles of the *Abdomen:* The manner of dilating it will be as above directed in the other *Hernia*'s: After the Operation in this, and all *Hernia*'s where the Inteſtines have been reduced, 'twill be convenient to wear a Truſs, ſince the Cicatrix is not always firm enough in any of them, to prevent a Relapſe, as I have had ſeveral Opportunities to inform my ſelf.

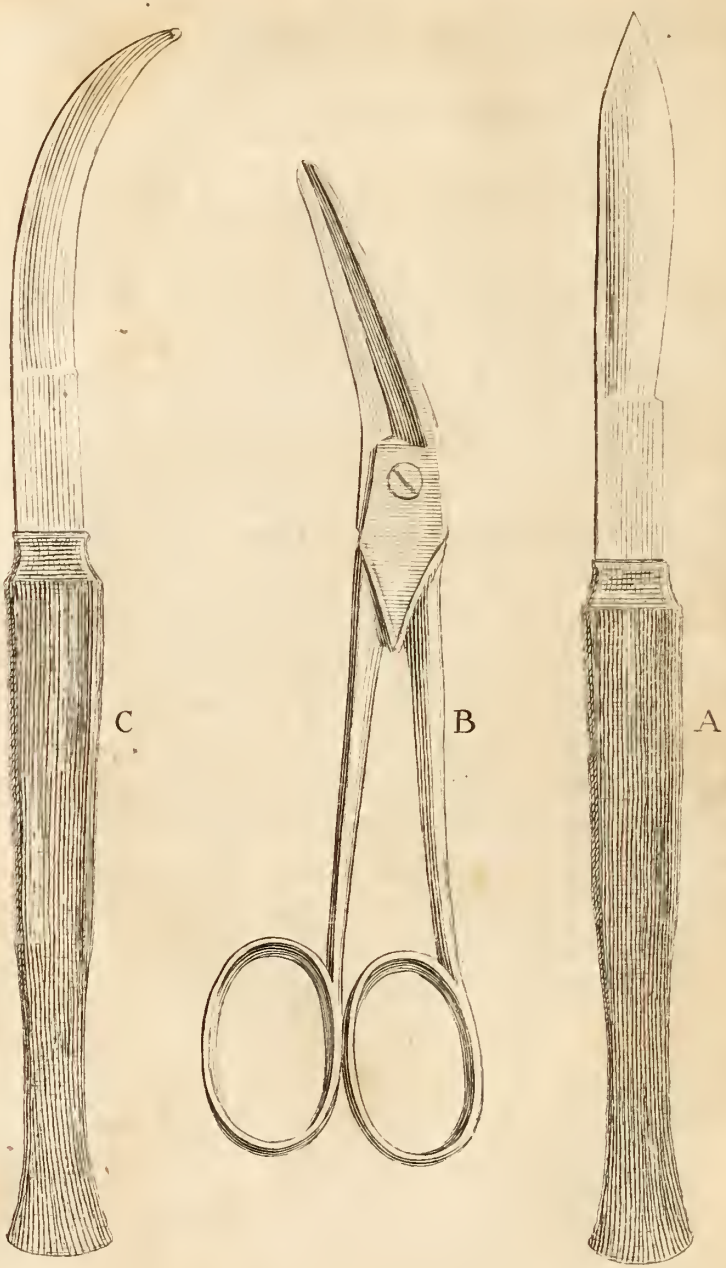
C
B
A

PLATE II.

The EXPLANATION.

A. The round-edged Knife, of a convenient Size for almoſt all Operations where a Knife is uſed; the Make of it will be better underſtood by the Figure than any other Deſcription; only it may be remark'd that the Handle is made of a light Wood, as indeed the Handles of all Inſtruments ſhould be, that the Reſiſtance to the Blades may be better felt by the Surgeon.

B. A pair of Probe-Sciſſars, which require nothing very particular in their Form, but that the lower Blade ſhould be made as ſmall as poſſible, ſo that it is ſtrong and has a good Edge, becauſe being chiefly us'd in Fiſtula's in *Ano*, the Introduction of a thick Blade into the Sinus, which is generally narrow, would be very painful to the Patient.

C. The crooked Knife; with the Point blunted, us'd in the Operation of the *Bubonocele*.

CHAP. IX.

Of the HYDROCELE.

THE *Hydrocele*, call'd alſo *Hernia Aquoſa*, *Hydrops Scroti*, and *Hydrops Teſtis*, is a watry Tumour of the *Scrotum*; which notwithſtanding the multiplicity of Diſtinctions us'd by Writers, is but of two kinds: The one when the Water is contain'd in the *Tunica Vaginalis*, and the other when in the *Membrana Cellularis Scroti*: This laſt is almoſt always complicated with an *Anaſarca*, which Species of Dropſy is an Extravaſation of Water lodged in the Cells of the *Membrana Adipoſa*; and when thus circumſtanced will not be difficult to be diſtinguiſh'd; beſides that it is ſufficiently characteris'd by the ſhining and ſoftneſs of the Skin, which gives way to the leaſt Impreſſion, and remains pitted for ſome time. The *Penis* is likewiſe ſometimes enormouſly inlarged, by the Inſinuation of the Fluids into the *Membrana Cellularis*, all which Symptoms are abſolutely wanting in the Dropſy of the *Tunica Vaginalis*.

IN the Dropſy of the *Membrana Cellularis Scroti*, the Puncture with the Trocar, is recommended by ſome, and little Orifices made here and there with the Point of a Lancet by others, or a ſmall Skane of Silk paſs'd by a Needle through the Skin, and out again at the diſtance of two or three Inches, to be kept in the manner of a Seton, 'till the Waters are quite drained: But the two firſt Methods avail very little, as they open but few Cells; and the laſt cannot be ſo efficacious in that reſpect as Inciſions, and will be much more apt to become troubleſome, and even to gangrene.

INDEED it is not often proper to perform any Operation at all upon this Part, ſince the *Membrana Cellularis Scroti*, being a continuation of the *Membrana Adipoſa*, Scarifications made through the Skin in the Small of the Legs will effectually empty the *Scrotum*, as I have many times experienced; and this Place ought rather to be pitch'd upon than the other, as being more likely to anſwer the purpoſe by reaſon of its Dependency: However it ſometimes happens that the Waters fall in ſo great quantities into the *Scrotum*, as by diſtending it to occaſion great Pain, and threaten a Mortification: The Prepuce of

the *Penis* alſo becomes very often exceſſively dilated, and ſo twiſted that the Patient cannot void his Urine. In theſe two Inſtances I would propoſe an Inciſion of three Inches long to be made on each ſide of the *Scrotum*, quite through the Skin into the Cells containing the Water, and two or three, of half an Inch long in any part of the *Penis*, with a Lancet or Knife; all which may be done with great Safety, and ſometimes with the Succeſs of carrying off the Diſeaſe of the whole Body. This I can poſitively ſay, that though I have done it upon Perſons in a very languid Condition, yet by making the Wound with a ſharp Inſtrument, and treating it afterwards with Fomentations and ſoft Digeſtives, I have never ſeen any Inſtance of a Gangrene, which is generally ſo much apprehended in this Caſe.

THE Dropſy of the *Tunica Vaginalis* is owing to a preternatural Diſcharge of that Water which is continually ſeparating in a ſmall quantity on the internal Surface of the Tunick, for the moiſtening or lubricating the Teſticle, and which collecting too faſt, heaps up and forms in time a Swelling of great magnitude: This is what I take to be the other Species of *Hydrocele*, and the only one beſides;

beſides; though from the time of *Celſus* down to our own Days, the Writers on this Subject make two kinds, one on the Inſide of the *Tunica Vaginalis*, and another between the *Scrotum* and Outſide of it, and among the Cauſes aſſigned for this Diſtemper, the principal one is the Derivation of Water from the Aſcites, which Opinion though univerſally received, is abſurd in Anatomy: For beſides that People afflicted with a *Hydrocele* are very ſeldom otherwiſe dropſical, and on the contrary, thoſe with an Aſcites have no *Hydrocele*; the *Tunica Vaginalis* is like a Purſe totally ſhut up on the Outſide of the *Abdomen*, ſo that no Water from any Part can inſinuate into it; and with reſpect to the Notion of Water falling from the *Abdomen* into the Interſtice of the *Tunica Vaginalis* and *Scrotum*, it is equally impoſſible; for though in the *Hernia Inteſtinalis*, the Gut falls into this Part, yet in that caſe the *Peritonæum* (which would hinder the Egreſs of the Water) falls down too, which the Ancients did not know, and the Moderns have omitted to reflect on in relation to this Subject.

THE *Hydrocele* of the *Tunica Vaginalis* is very eaſily to be diſtinguiſhed from the *Hydrocele* of the *Membrana Cellularis*, by the

the preceding Deſcription of that Species of Dropſy: I ſhall now explain how it differs from the other Tumours of the *Scrotum*, *viz.* the *Bubonocele*, *Epiplocele*, and enlarg'd Teſticle: In the firſt place, it is ſeldom or never attended with Pain in the beginning, and is very rarely to be imputed to any Accident, as the *Hernia*'s of the *Omentum* and Inteſtine are; from the time it firſt makes its Appearance it hardly is ever known to diminiſh, but generally continues to increaſe, though in ſome much faſter than in others; in one Perſon growing to a very painful Diſtenſion in a few Months, whilſt in another it ſhall not be troubleſome in many Years; nay, ſhall ceaſe to ſwell at a certain Period, and ever after continue in that ſtate without any notable diſadvantage; though this laſt Caſe very rarely happens: In proportion as it enlarges it becomes more tenſe, and then is ſaid to be tranſparent, indeed the Tranſparency is made the chief Criterion of the Diſtemper, it being conſtantly adviſ'd to hold a Candle on one ſide of the *Scrotum*, which it is ſaid will ſhine through to the other, if there be Water: But this Experiment does not always anſwer, becauſe ſometimes the *Scrotum* is very much thicken'd, and the Water

Water it ſelf not tranſparent; ſo that to judge poſitively if there be a Fluid, we muſt be guided by feeling a Fluctuation; and tho' ſometimes we do not perhaps evidently perceive it, yet we may be perſuaded there is a Fluid of ſome kind, if we are once aſſur'd that the Diſtenſion of the *Tunica Vaginalis* makes the Tumour, which is to be diſtinguiſh'd in the following manner.

IF the Inteſtine, or *Omentum*, form the Swelling, they will be ſoft and pliable, (unleſs inflamed) uneven in their Surface, particularly the *Omentum*, and both of them extend themſelves up from the *Scrotum* quite into the very *Abdomen*; whereas in the *Hydrocele*, the Tumour is tenſe and ſmooth, and ceaſes before or at its Arrival to the Rings of the Abdominal Muſcles; becauſe the upper Extremity of the *Tunica Vaginalis* terminates at ſome diſtance from the Surface of the Belly.

WHEN the Teſticle is increas'd in its Size, the Tumour is rounder, and, if not attended with an Inlargement of the Spermatick Veſſels, the Cord may be eaſily diſtinguiſh'd between the Swelling and *Abdomen*; but without this Rule of Diſtinction, either the Pain or the very great Hardneſs, will diſcover it to be a Diſeaſe of the Teſticle.

As

As to the Cure of this Diſtemper by external Applications, or internal Means, after having tried upon a great variety of Subjects, moſt of the Medicines invented to that end, I have found but very little Satisfaction in the Event; for if by chance any one has mended under a Phyſical Regimen, it muſt be confeſs'd too, that there are ſome Inſtances of People recovering, who have ſo abſolutely neglected themſelves as not even to wear a Bag-Truſs; on which account I ſhould judge it adviſable to wait with patience 'till the Tumour becomes troubleſome, and then to tap it with a Lancet, which is rather leſs offenſive to the *Tunica Vaginalis* than the Trocar. In opening with a Lancet it may poſſibly happen, the Orifice of the Skin ſhall ſlip away from that of the Tunick, and prevent the Egreſs of the Water; to obviate which Inconvenience you may introduce a Probe, and by that means ſecure the exact Situation of the Wound. It is ſpoke of as an eaſy thing to hold the Teſticle with the left Hand, while we make the Puncture with the right, but when the *Tunica Vaginalis* is very tenſe it cannot well be diſtinguiſh'd, however I think there is no danger of wounding it, if you open the inferior part of the *Scrotum*, and not with too long a Lancet.

During

During the Evacuation, the *Scrotum* muſt be regularly preſs'd; and after the Operation a little piece of dry Lint and ſticking Plaiſter are ſufficient.

THIS Method of Tapping is call'd *The Palliative Cure*; not but that it does now and then prove an abſolute one. To prevent the Relapſe of this Diſeaſe, Surgeons preſcribe the making a large Wound, either by Inciſion or Cauſtick, that upon healing it afterwards, the Firmneſs and Contraction of the Cicatrix may bind up the relaxed lymphatick Veſſels, and obſtruct the further preternatural Effuſion of their Contents: But by what I have ſeen of this Practice, it is attended with ſo much danger, that, notwithſtanding its ſucceſs in the end, I believe whoever reads the following Caſes will be apt to diſcard the Method, and abide rather by the Palliative Cure.

CASE I.

A. B. aged 44, a ſtrong Man, never in his Life having been ſubject to any other Infirmity, put himſelf under my care for the Relief of a *Hydrocele* on the left ſide of the *Scrotum*.

December 3, 1733, I diſcharged the Water, by making an Inciſion through the Teguments about

about four Inches long. Towards Night he grew feveriſh, got no reſt; the *Scrotum* and Teſticle on that ſide beginning to inflame, and the capillary Arteries (dilating) to bleed freely. He was ſeized too with a violent Pain in his Back, which was in a great meaſure remov'd by ſuſpending the *Scrotum* with a Bag-Truſs.

FROM the 3d to the 7th, continued in a moſt dangerous condition, when the Fever tended to a Criſis, by the Suppuration of both Wound and Teſticle.

FROM the 7th to the 24th, he daily acquired Strength; but the Diſcharge from the Teſticle increaſing, and the Sinus penetrating now very deep towards the *Septum Scroti*, I opened the Body of the Teſticle the whole length of the Abſceſs.

FROM the 24th, the Diſcharge leſſen'd ſurpriſingly, ſo that in ſix days the Surface of the greateſt part of the Teſticle united with the *Scrotum*, and there remain'd only a ſuperficial Wound, which was intirely cicatris'd on *Jan.* 10, 1733-4.

March 31, 1737, he continued in perfect Health.

CASE

CASE II.

IN the Year 1733, I made an Inciſion thro' the *Scrotum* and *Tunica Vaginalis* of a Boy about eight Years of age, who narrowly eſcaped with his Life; but the Symptomatick Fever terminating at laſt in an Abſceſs of the *Scrotum*, it prov'd his Cure, though with ſome trouble, in a few Weeks.

CASE III.

A. C. aged 37, of a very hale habit of Body, had complained of a Tumour on one ſide of the *Scrotum*, which continuing to enlarge for ſix Years, he apply'd to a Surgeon, who laid a ſmall Cauſtick on the upper part of it, and opening the Eſchar, empty'd near three Pints of Water; but he relapſing ſoon after this, I undertook the abſolute Cure.

December 15, 1736, I laid on the anterior and upper part of the *Scrotum* a Cauſtick about ſix Inches long, and one broad.

December 16, by a ſmall Puncture through the Eſchar, I emptied above a Quart of Water.

FROM the 17th to the 24th, he continued in a great deal of Pain, not only in the Part, but in his Back and Loins, and had very little reſt;

reſt; the *Scrotum* on that ſide became exceedingly inflam'd and thicken'd, the ſymptomatick Fever running very high, without any ſigns of the Digeſtion of the Wound.

ON the 24th at night he grew a little eaſier, and continued ſo 'till the 29th, when the Slough ſeparated; but the Wound retained ſtill a bad Aſpect, no Granulations appearing on its Surface.

FROM *Decemb.* 29, to *Jan.* 5, he remained in the ſame ſtate.

FROM the 5th to the 13th, the Swelling and Pain rather increas'd, and that night he was ſeized with an Ague Fit, which return'd every other day twice more.

FROM the 17th to the 26th, the Ague being ſtopt, he began to alter much for the better, two Impoſthumations on the *Scrotum* being in this interim opened.

BY *Feb.* 2, the Pain was quite gone, the Tumour very much ſunk, and the Induration ſoftened.

IN a very few days after, the Wound cicatris'd, and on *Feb.* 24, I left him in perfect Health, and free from any complaint.

HAVING in the preceding Caſes been threatned with the Death of the Patients, I tried the following Experiment, upon the reputa-

tion

tion of its having been done with Succeſs by others.

CASE IV.

A. D. aged Forty-two, had for near four Years been troubled with a *Hydrocele* on one ſide, for which I had tapp'd him about a dozen times, taking away near a Pint of clear Water each Operation.

Jan. 3, 1736-7, after having emptied the *Tunica Vaginalis*, I injected an Ounce of Spirit of Wine; in the inſtant he complained of great Pain, which continued to increaſe, and the next Day the Teguments were very much augmented in their bulk and thickneſs.

Jan. 7, the Tenſion became violently painful, and perceiving a Fluctuation, I made a Puncture, and he voided about half a Pint of Water, very deeply tinged with Blood, but without any Flavour of the Spirits to be diſtinguiſh'd by the Smell: This gave him ſome Eaſe, but the Inflammation and Thickneſs continued a whole Month, and then terminated in two Abſceſſes on the forepart of the *Scrotum*, which I open'd the 7th of *February* following, and on their Diſcharge the whole Tumour ſubſided, leaving a firm Cicatrix and abſolute Cure of that Diſorder.

SOMETHING ſimilar to the Circumſtance of *A. D*'s bloody Water is the Caſe of another Perſon who was under my care: He had at conſiderable intervals of time been often tapp'd, diſcharging that ſort of ſerous Water the *Tunica Vaginalis* for the moſt part yields; at laſt it became tinged with Blood, and every time grew more bloody than the other: The fourth Diſcharge of this kind was attended with a remarkable Hæmorrhage, and terminated in an abſolute Cure; no ſigns of a Relapſe appearing ſome Months after, as I had an opportunity to inform myſelf.

To the Caſes above recited I could add ſtill more that have fallen within my Knowledge ſince the time I made theſe Obſervations; particularly two, attended with Inflammation and Abſceſs, from the mere Puncture of the Lancet; both of which terminated in an abſolute Cure. It may be remark'd however of theſe two, that one was attended with a thickened Tunick, and the Water bloody; and in the other the Coat was thickened, and the *Epididymis* inlarged and indurated from a former Gonorrhœa.

I WOULD not however be underſtood from this Catalogue of Misfortunes, that the Operation is never performed with Safety; a few

Examples

Examples I have known in its favour, but by no means enough to balance the bad Effects of it.

'TIS worth obſerving, that upon examination of the ſeveral *Hydrocele*'s after their Cure, it appeared evidently it was wrought by an univerſal Adheſion of the Teſticle to the *Tunica Vaginalis*, and again of that Coat to the Parts enveloping it; from which Obſervation it will not be difficult to conceive how it happens, that Diſcharges of bloody Water work a Cure; ſince Inflammations of Membranes almoſt perpetually produce Adheſions of the neighbouring Parts, and theſe Diſcharges are no other than a mixture of Blood with the Water from the ruptur'd Veſſels of the inflamed Tunick.

IT has been ſuggeſted that probably the expoſing the *Tunica Vaginalis* to the Air, might occaſion the abovemention'd Diſorders; but beſides that the Caſe of the injected *Sp. Vin.* the Caſe of the Cauſtick and the two Punctures, are ſufficient Anſwers to that Opinion, the Inſtances I have ſeen of the whole *Scrotum* ſeparating in a Gangrene from the *Tunica Vaginalis*, and leaving it naked a great many Days without any ill effect, put it out of diſpute that 'tis the mere Inflammation of the Tunick

produces the Danger. I have caſtrated two Men, whoſe ſchirrous Teſticles were accompanied with a *Hydrocele*, but the whole *Tunica Vaginalis* being carried off by the Operation, they both recover'd without any bad Symptoms.

I SHALL finiſh this Chapter with a further Remark on the ſuppoſed variety of *Hydrocele*'s. Beſides the imaginary one already ſpecified between the *Scrotum* and inferior Membranes, there is mention made of a Species of Dropſy between the *Cremaſter Muſcle* and *Tunica Vaginalis*, call'd the *Encyſted Hydrocele:* But I judge it more likely to be within-ſide the Coat, which adhering in different places to the Spermatick Cord, may form a Cyſt or two between the Adheſions, of which an Inſtance has fallen under my own Examination. Indeed if we reflect on the Cauſe of a Dropſy of this Part, we muſt neceſſarily confine it to the Inſide of the Membrane, where only is that order of Veſſels which are the Subject of the Diſeaſe. The Dropſy of the *Teſtis* itſelf is the laſt ſuppos'd Species, but it's what I have never ſeen; and from the Analogy of the *Teſtis* to the Structure of other Glands, that are not pretended to become Dropſical, I am ſuſpicious there is no ſuch Diſtemper.

Of

CHAP. X.

Of CASTRATION.

THIS is one of the moſt melancholy Operations in the Practice of Surgery, ſince it ſeldom takes place but in Diſorders into which the Patient is very apt to relapſe, *viz.* thoſe of a Schirrus, or Cancer, for under moſt of the Symptoms deſcribed as rendering it neceſſary, it is abſolutely improper; ſuch as a *Hydrocele*, Abſceſs of the *Teſtis*, an increaſing Mortification, or what is ſometimes underſtood by a *Sarcocele*; of which laſt it may not be amiſs to ſay a Word. In the utmoſt Latitude of the meaning of this Term, 'tis receiv'd as a fleſhy Swelling of the Teſticle itſelf, call'd likewiſe *Hernia Carnoſa*; or in ſome Inlargements, ſuch as in a Clap, more frequently *Hernia Humoralis*; but generally ſpeaking is conſider'd as a fleſhy Excreſcence form'd on the Body of the *Teſtis*, which becoming exceeding hard and tumefied, for the moſt part is ſuppos'd to demand Extirpation, either by burning away the Induration, or amputating the Teſticle: But this Maxim too precipitate-

ly receiv'd, has, I apprehend, very much miſguided the Practitioners of Surgery.

IN order to conceive better of the Diſtinction I'm going to make, it muſt be remembred, that what is call'd the Teſticle, is really compos'd of two different parts; one Glandular, which is the Body of the *Teſtis* itſelf; and one Vaſcular or Membranous, known by the name of *Epididymis*, which is the beginning of the *Vas Deferens*, or the Collection of the excretory Ducts of the Gland.

Now it ſometimes happens that this Part is tumefied, independent of the Teſticle, and feeling like a large adventitious Excreſcence, anſwers very well to the Idea moſt Surgeons form of a *Sarcocele*; but not being aware of the different Nature and Texture of the *Epididymis*, they have frequently confounded its Diſorders with thoſe of the Teſticle itſelf, and equally recommended Extirpation in the Induration of one or the other. But without tiring the Reader with particular Hiſtories of Caſes relating to this Subject, I ſhall only ſay, That from diligent enquiry I have collected, that all Indurations of the glandular Part of the Teſticle not tending to Inflammation and Abſceſs, generally, if not always, lead on to Schirrus and Cancer; whereas thoſe of the

Epidi-

Epididymis ſeldom or never do. It is true, in ſpite of internal or external Means, theſe laſt often retain their Hardneſs, and ſometimes ſuppurate, but however without much danger in either Caſe.

'TWILL not be hard to account for this difference of Conſequences from Tumours of ſeemingly one and the ſame Body, when we reflect how much it is the nature of cancerous Poiſons to fix upon Glands, and how different the *Epididymis* is from a Gland, though ſo nearly in the neighbourhood of one.

I WOULD not have it ſuppoſed from what I have ſaid, that the *Epididymis* never becomes Cancerous; I confeſs it may, ſo may every part of the human Body: But I advance, that it rarely or never is ſo but from an Affection of the Glandular Part of the Teſticle firſt, which indeed ſeldom fails to taint, and by degrees to confound it in ſuch manner as to make one Maſs of the two.

BEFORE we caſtrate, it is laid down as a Rule to inquire whether the Patient has any Pain in his Back, and in that Caſe to reject the Operation, upon the reaſonable Preſumption of the Spermatick Veſſels being likewiſe diſeaſed; but we are not to be too haſty in this Determination; for the mere weight of

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the Tumour ſtretching the Cord, will ſometimes create the Complaint. To learn the Cauſe then of this Pain in the Back, when the Spermatick Cord is not thickened, let your Patient be kept in bed, and ſuſpend his *Scrotum* in a Bag-Truſs, which will relieve him if diſordered by the weight only; but if the Spermatick Cord is thickened or indurated, which Diſeaſe, when attended with a Dilatation of the Veſſels of the *Scrotum*, is deſcribed by the *Latins* under the name of *Ramex*, (though it is more now known by the *Greek* Appellations *Circocele* and *Varicocele*) the Caſe is deſperate and not to be undertaken.

BUT ſuppoſing no Obſtacle in the way to the Operation, the Method of doing it may be this: Lay your Patient on a ſquare Table of about three foot four Inches high, letting his Legs hang down, which, as well as the reſt of his Body, muſt be held firm by the Aſſiſtants. Then with a Knife begin your Wound above the Rings of the *Abdominal* Muſcles, that you may have room afterwards to tie the Veſſels, ſince for want of this Caution Operators will neceſſarily be puzzled in making the Ligature: then carrying it through the *Membrana Adipoſa*, it muſt be continued downward, the length of it to be in proportion

tion to the ſize of the Teſticle. If it is very ſmall, it may be diſſected away without taking off any part of the *Scrotum*; but I am not very fond of this Method, becauſe ſo much looſe flabby Skin is apt to form Abſceſſes afterwards, and very frequently grow callous. If the Teſticle, for inſtance, weighs twenty Ounces; having made one Inciſion about five Inches long, a little circularly, begin a ſecond in the ſame Point as the firſt, bringing it with an oppoſite Sweep to meet the other in the inferior Part, in ſuch a manner as to cut out the ſhape of an Oval, whoſe ſmalleſt Diameter ſhall be two Inches: After this, diſſect the body of the Tumour, with the piece of Skin on it from the *Scrotum*, firſt taking up ſome of the Blood-Veſſels if the Hæmorrhage is dangerous. Then paſs a Ligature round the Cord, pretty near the *Abdomen*, and if you have ſpace between the Ligature and Teſticle, a ſecond about half an Inch lower, to make the ſtoppage of Blood ſtill more ſecure. The Ligatures may be tied with what is call'd the *Surgeon*'s *Knot*, where the Thread is paſs'd through the Ring twice. This done, cut off the Teſticle a little underneath the ſecond Ligature, and treat your Patient as in other freſh Wounds.

I ONCE

I ONCE caſtrated a Man whoſe Teſticle weighed above three Pounds, where ſome of the Veſſels were ſo exceeding varicous and dilated as nearly to equal the ſize of the Humeral Artery; however, I took up two or three of the moſt conſiderable, and purſued the Operation, cutting away near three fourths of the Skin, by which means I avoided a dangerous Effuſion, as by dividing the Veſſels before they were much ramified, I had fewer Ligatures to make: The Succeſs anſwer'd the Deſign, and the Patient ſurviv'd the Operation and healing of the Wound, but the cancerous Humour falling on his Liver ſome time after, deſtroy'd him. In large Tumours, ſuch as the laſt I have mention'd, it is very much to be advis'd to cut away great part of the Skin; for beſides that the Hæmorrhage will be much leſs in this Caſe, and the Operation greatly ſhorten'd; the Skin by the great Diſtenſion having been render'd very thin, will great part of it, if not taken away, ſphacelate, and the reſt be more prone to degenerate into a cancerous Ulcer.

IT may be obſerv'd I do not, in order to avoid wounding the Spermatick Veſſels, recommend pinching up the Skin before the Inciſion, and afterwards thruſting the Fingers between

between the *Membrana Adipoſa* and the Teſticle, to tear the one from the other; the firſt is not dextrous, and the other is cruel, and both of them, in my opinion, are calculated to prevent what there is little or no danger of.

CHAP. XI.

Of the PHYMOSIS.

THE *Phymoſis* ſignifies no more than ſuch a Straightneſs of the Prepuce, that the Glans cannot be denuded, which if it becomes troubleſome ſo as to prevent the Egreſs of the Urine, or conceal under it Chancres, or foul Ulcers, quite out of the reach of Application, is to be cut open. It ſometimes happens that Children are born imperforate, in which caſe a ſmall Puncture, dreſs'd afterwards with a Tent, effects a Cure: But this Operation is chiefly practis'd in venereal Caſes, in order to expoſe Chancres either on the Glans or withinſide the Prepuce itſelf: And here, if the Prepuce is not very callous and thick, a mere Inciſion will anſwer, which may be made either with the Sciſſars, or by ſlipping

ſlipping a Knife between the Skin and Glans to the very Extremity, and cutting it up: The laſt Method is more eaſy than that of the Sciſſars, but it is much ſafer to make the Wound on one ſide the Prepuce than upon the upper Part, for I have ſometimes ſeen the great Veſſels on the *Dorſum Penis* afford a terrible Hæmorrhage, which may be avoided by following this Rule.

IF the Prepuce is very large and indurated, the Opening alone will not ſuffice, and it is more adviſeable to take away the Calloſity by Circumciſion, which muſt be performed with a Knife; and if the Artery bleeds much, it muſt be taken up with a ſmall Needle and Ligature.

CHAP. XII.

Of the PARAPHYMOSIS.

THE *Paraphymoſis* is a Diſeaſe of the *Penis*, where the Prepuce is fallen back from the Glans, and cannot be brought forwards to cover it: There are a great many whoſe *Penis* is naturally thus form'd, but without

out any Inconvenience; ſo that ſince the time of the *Romans* (ſome of whom thought it indecent to have the Glans bare) it has not been uſual, as I can find, to perform any Operation upon that account; but we read the ſeveral Proceſſes of it deſcribed very particularly by *Celſus*, who does not ſpeak of it as an uncommon thing. Moſt of the Inſtances of this Diſtemper are owing to a venereal Cauſe, but there are ſome where the Prepuce is naturally very tight, which take their riſe from a ſudden Retraction of it, and immediate inlargement of the Glans preventing its return. Sometimes it happens the Surgeon ſucceeds in the Reduction immediately, by compreſſing the extremity of the *Penis* at the time he is endeavouring to advance the Prepuce; if he does not, let him keep it ſuſpended, and attempt again, after having fomented, and us'd ſome emollient Applications: But if from the Contraction below the *Corona Glandis* there is ſo great Stricture as to threaten a Gangrene, or even if the *Penis* is much inlarged by Water in the *Membrana Reticularis*, forming Tumours, call'd *Cryſtallines*, three or four ſmall Inciſions muſt be made with the point of a Lancet into the Stricture and *Cryſtallines*, according to the direction

direction of the *Penis* itſelf, which in the firſt Caſe will ſet free the Obſtruction, and in the other evacuate the Water: The manner of dreſſing afterwards muſt be with Fomentations, Digeſtives, and the *Theriaca Londinenſis* over the Pledgits.

CHAP. XIII.

Of the PARACENTESIS.

THIS Operation is an Opening made into the *Abdomen*, in order to empty any quantity of extravaſated Water collected in that Species of Dropſy call'd the *Aſcites*; but as there is much more difficulty in learning when to perform, than how to perform it, and indeed in ſome Inſtances requires the niceſt Judgment; I ſhall endeavour to ſpecify the Diſtinctions that render the undertaking more or leſs proper.

THERE are but two kinds of Dropſy, the *Anaſarca*, call'd alſo *Leucophlegmacy*, when the extravaſated Water ſwims in the Cells of the *Membrana Adipoſa*; and the *Aſcites*, when the Water poſſeſſes the Cavity of the *Abdomen:* In the firſt kind, the Water is clear and limpid, but

but in the ſecond a little groſſer, very often gelatinous and corrupted, and ſometimes even mix'd with fleſhy Concretions. I do not mention the *Tympany* or flatulent Dropſy of the *Abdomen*; nor have I in the Chapter of *Hernia*'s ſpoke of the *Hernia Ventoſa*, it being certain that the *Aſcites* and *Bubonocele* have always been miſtaken for thoſe Diſeaſes.

IT is of no great conſequence in the Practice of Phyſick or Surgery, whether the Water is diſcharged by a Rupture of the Lymphaticks, or a Tranſudation through the Pores of their relaxed Coats, ſince the Fact is eſtabliſh'd, that they have a Power ſometimes of abſorbing the Fluid, lying thus looſe, and conveying it into the courſe of the Circulation; after which it is often totally carry'd off by ſome Emunctory of the Body. The great diſpoſition there is in Nature to fix upon the Kidneys and Glands of the Inteſtines for this end, has put Phyſicians upon promoting it by Catharticks and Diureticks, which ſometimes entirely carry off the Diſtemper. If any one ſhould doubt of the poſſibility of a Cure when the Water is extravaſated, let him inject through a ſmall Opening into the *Thorax* or *Abdomen* of a Dog, a Pint of warm Water, and upon Diſſection ſome few Hours after,

after, he ſhall not find one Drop left there, which puts out of diſpute this power of Abſorption: But indeed though we do not much attend to it, 'tis by this very Act the Circulation is carried on regularly, with reſpect to ſome, if not all the Secretions, which would overload their Receptacles, if they were not thus taken up again. The Example ſerving for Illuſtration, may be the Circulation of the aqueous Humour of the Eye, which no one queſtions, is an extravaſated Fluid.

THE Operation of Tapping is ſeldom the Cure of the Diſtemper, but Dropſies, which are the conſequence of a mere Impoveriſhment of the Blood, are leſs likely to return than thoſe that are owing to any previous Diſorder of the Liver, and it is not uncommon for Dropſies that follow Agues, Hæmorrhages and Diarrhœa's to do well; whereas in ſuch as are complicated with a ſchirrous Liver, there is hardly an Example of a Cure.

THE Water floating in the Belly is by its Fluctuation to determine whether the Operation is adviſeable, for if by laying one Hand on any Part of the *Abdomen* you cannot feel an Undulation from ſtriking on an oppoſite Part with the other, it is to be preſum'd there will be ſome obſtacle to the Evacuation. It

ſome-

ſometimes happens that a great quantity, or almoſt all the Water is contain'd in little Bladders, adhering to the Liver and the Surface of the *Peritonæum*, known by the name of *Hydatids*, and the reſt of it in different ſiz'd ones, from the degree of a *Hydatid* to the ſize of a Globe holding half a Pint, or a Pint of Water. This is call'd the Incyſted Dropſy, and from the Smallneſs of its Cyſts, makes the Operation uſeleſs, but is not difficult to be diſtinguiſh'd, becauſe there is not a Fluctuation of the Water, unleſs it is complicated with an Extravaſation.

WHEN the Fluctuation is hardly perceptible, except the Teguments of the *Abdomen* are very much thicken'd by an *Anaſarca*, in all probability the Fluid is gelatinous: I have had Inſtances where it was too viſcid to paſs through a common Trocar, on which account it is proper to be furniſhed with a couple of the ſize deſcrib'd in the Copper-Plate. I once tapp'd a Perſon when the Fluid would not paſs even through the large one; ſo to eaſe him from the Diſtenſion he labour'd under, I dilated the Orifice with a large Sponge-Tent, and afterwards extracted a prodigious quantity of diſtinct concreted *Hydatids*, differing

in nothing, as I could diſcover, from the nature of a *Polypus* form'd in the Noſe.

THERE is another kind of Dropſy, which for the moſt part forbids the Operation, and is peculiar to Women, being ſeated in the body of one or both Ovaries. There is, I believe no example of this Species but what may be known by the Hardneſs and Irregularity of the Tumour of the *Abdomen*, which is nearly uniform in the other Caſes.

WHEN the Ovary is dropſical, the Water is generally depoſited in a great number of Cells form'd in the body of it, which Circumſtance makes the Fluctuation inſenſible, and the Perforation uſeleſs, though ſometimes there are only one or two Cells, in which caſe if the Ovary is greatly magnified, the Undulation will be readily felt, and the Operation be adviſeable. I once tapp'd a Gentlewoman in this Circumſtance, whoſe Ovary upon the Puncture yielded but half a Pint of Water, but being ſtill perſuaded by the feel, there was a large Cyſt, I tapp'd her in another Part, and drew away near a Gallon: I had an opportunity after her Death to be convinc'd of this Fact by examining the Body.

WHEN the *Aſcites* and *Anaſarca* are complicated, it is ſeldom proper to perform the Opera-

Operation, ſince the Water may be much more effectually evacuated by Scarifications in the Legs than by tapping.

UPON the Suppoſition nothing forbids the Extraction of the Water, the manner of operating is this: Having plac'd the Patient in a Chair of a convenient height, let him join his Hands ſo as to preſs upon his Stomach, then dipping the Trocar in Oil, you ſtab it ſuddenly through the Teguments, and withdrawing the Perforator, leave the Waters to empty by the Canula: the *Abdomen* being, when fill'd, in the circumſtance of a Bladder diſtended with a Fluid, would make it indifferent where to wound, but the Apprehenſion of hurting the Liver, if it happens to be much enlarg'd, has induc'd Operators rather to chooſe the left ſide, and generally in that Part which is about three Inches obliquely below the Navel: If the Navel protuberates you may make a ſmall Puncture with a Lancet through the Skin, and the Waters will be readily voided by that Orifice, without any danger of a *Hernia* ſucceeding, as is apprehended by many Writers: The Surgeon neither in opening with the Lancet, nor wounding with the Trocar, need fear injuring the Inteſtines, ſince they are too much confined by the Meſen-

tery, to come within reach of danger from theſe Inſtruments; but it ſometimes happens that when the Water is almoſt all emptied, it is ſuddenly ſtopp'd by the Inteſtine or *Omentum* preſſing againſt the end of the Canula, in which caſe you may puſh them away with a Probe: During the Evacuation your Aſſiſtants muſt keep preſſing on each ſide of the *Abdomen*, with a force equal to that of the Waters before contain'd there; for by neglecting this Rule the Patient will be apt to fall into Faintings, from the weight on the great Veſſels of the *Abdomen* being taken off, and the ſinking of the Diaphragm ſucceeding; in conſequence of which more Blood flowing into the inferior Veſſels than uſual, leaves the ſuperior ones of a ſudden too empty, and thus interrupts the regular Progreſs of the Circulation. To obviate this Inconvenience, the Compreſſion muſt not only be made with the Hands during the Operation, but be afterwards continued by ſwathing the *Abdomen* with a Roller of Flannel, about eight Yards long, and five Inches broad, beginning at the bottom of the Belly, ſo that the Inteſtines may be bore up againſt the Diaphragm: You may change the Roller every Day 'till the third or fourth Day, by which time the

ſeveral

ſeveral Parts will have acquir'd their due Tone. For the Dreſſing, a piece of dry Lint and Plaiſter ſuffice, but between the Skin and Roller it may be proper to lay a double Flannel a foot ſquare, dipt in Brandy or Spirits of Wine.

THIS Operation, though it does not often abſolutely cure, yet it ſometimes preſerves Life a great many Years, and even a pleaſant one, eſpecially if the Waters have been long collecting; I have known ſeveral Inſtances of People being tap'd once a Month, for many Years, who felt no diſorder in the Intervals, 'till towards the time of the Operation, when the Diſtenſion grew painful; and there are Inſtances where the Patient has not relapſed after it. Upon the whole, there is ſo little Pain or Danger in the Operation, that in conſideration of the great Benefits ſometimes receiv'd from it, I cannot but recommend it as exceedingly uſeful.

PLATE III.

The EXPLANATION.

A. A Trocar of the moſt convenient ſize for emptying the *Abdomen*, when the Water is

not gelatinous. It is here repreſented with the Perforator in the Canula, juſt as it is plac'd when we perform the Operation.

B. The Canula of a large Trocar, which I have recommended in Caſes where the Water is gelatinous.

C. The Perforator of the large Trocar.

The Handle of the Trocar is generally made of Wood, the Canula of Silver, and the Perforator of Steel; great care ſhould be taken by the Makers of this Inſtrument, that the Perforator ſhould exactly fill up the Cavity of the Canula; for unleſs the Extremity of the Canula lies quite cloſe and ſmooth on the Perforator, the Introduction of it into the *Abdomen* will be very painful; to make it ſlip in more eaſily, the Edge of the Extremity of the Canula ſhould be thin and ſharp; and I would recommend that the Canula be Steel, for the Silver one being of too ſoft a Metal, becomes jagged or bruis'd at its Extremity with very little uſe. After the Operation, the Canula muſt be wip'd clean and dry, by drawing a Slip or two of Flannel through it; otherwiſe when the Perforator is put into it they will both grow ruſty.

CHAP.

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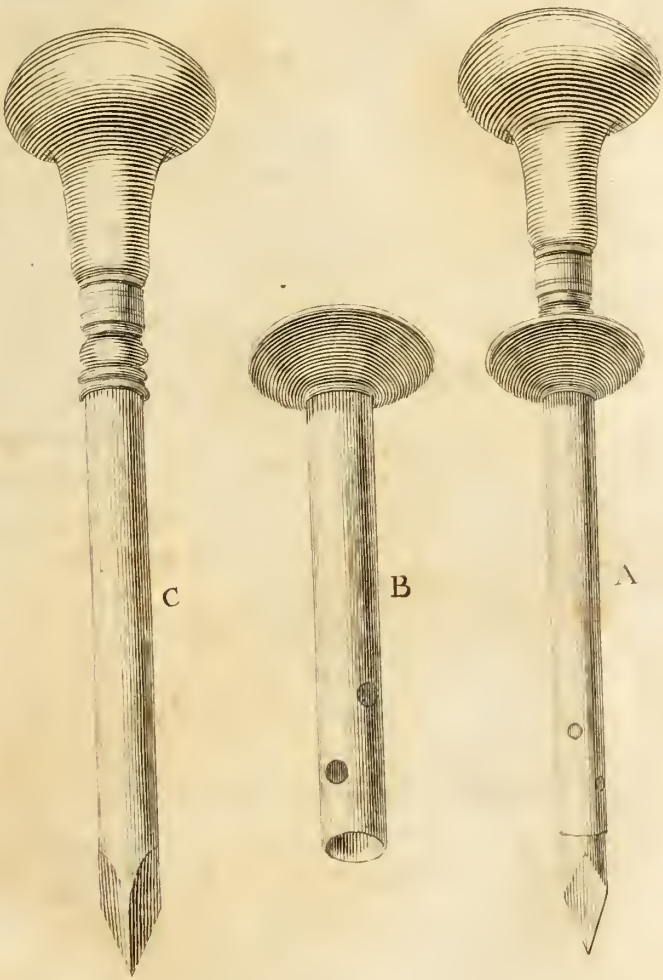

CHAP. XIV.

Of the FISTULA IN ANO.

THE *Fiſtula in Ano*, without any regard to the ſtrict Definition of the Word, is generally underſtood to be an Abſceſs running upon or into the *Inteſtinum Rectum*; though an Abſceſs in this Part, when once ruptur'd, does generally, if neglected, grow callous in its Cavity and Edges, and become at laſt what is properly call'd a *Fiſtula*.

THAT the *Anus* is ſo often expos'd to this Malady in any Criſis of the Conſtitution is chiefly imputed to the depending Situation of the Part; but what greatly conduce to it likewiſe, are the vaſt quantities of Fat ſurrounding the *Rectum*, and the great Preſſure the Hæmorrhoidal Veſſels are liable to, which being ſuſtain'd upon very looſe Membranes, will be leſs able to reſiſt any Effort that Nature ſhall exert to fling off a Surcharge, and from one ſtep to another, that is, from Inflammation to Suppuration, lead on to the Diſtemper we are treating of. That the Fat is the proper Subject of Abſceſſes, may be learn'd from

an Inflammation of the Skin affecting the *Membrana Adipoſa*, and producing Matter there, in which caſe a Suppuration frequently runs from Cell to Cell, and in a few days lays bare a great quantity of Fleſh underneath, without affecting the Fleſh itſelf: Nay, I think it may be doubted, whether in thoſe Abſceſſes that are eſteem'd Suppurations of the Muſcles, the Inflammation and Matter are not abſolutely firſt formed in this Membrane, where it is inſinuated between the Interſtices of their Fibres.

THE Piles, which are little Tumours form'd about the Verge of the *Anus*, immediately within the *Membrana interna* of the *Rectum*, do ſometimes ſuppurate, and become the Forerunners of a large Abſceſs; alſo external Injuries here, as in every other part of the Body, may produce it; but from whatever Cauſe the Abſceſs ariſes, the manner of operating upon it will be according to the Nature and Direction of its Cavity.

IF the Surgeon has the firſt Management of the Abſceſs, and there appears an external Inflammation upon one ſide of the Buttock only, after having waited for the proper Maturity, let him with a Knife make an Inciſion the whole length of it, and in all probability, even

even though the Bladder be affected, the largeneſs of the Wound, and the proper application of Doſſils lightly preſs'd in, will prevent the Putrefaction of the Inteſtine, and make the Cavity fill up like Impoſthumations of other Parts.

IF the *Sinus* is continued to the other Buttock almoſt ſurrounding the Inteſtine, the whole courſe of it muſt be dilated in like manner, ſince in ſuch ſpongy Cavities a Generation of Fleſh cannot be procur'd but by large Openings; whence alſo, if the Skin is very thin, lying looſe and flabby over the *Sinus*, it is abſolutely neceſſary to cut it quite away, or the Patient will be apt to ſink under the Diſcharge, which in the Circumſtance here deſcribed, is ſometimes exceſſive. By this Method, which cannot be too much recommended, it is amazing how happy the Event is likely to be; whereas from neglecting it, and truſting only to a narrow Opening, if the Diſcharge does not deſtroy the Patient, at leaſt the Matter by being confined, corrupts the Gut, and inſinuating itſelf about it, forms many other Channels, which running in various Directions, often baffle an Operator, and have been the cauſe of a Fiſtula being ſo generally eſteemed very difficult of Cure.

HERE

HERE I have conſider'd the Impoſthumation as poſſeſſing a great part of the Buttock; but it more frequently happens that the Matter points with a ſmall extent of Inflammation on the Skin, and the Direction of the *Sinus* is even with the Gut: In this Caſe, having made a Puncture, you may with a Probe learn if it has penetrated into the Inteſtine by paſſing your Finger up it, and feeling the Probe introduc'd through the Wound into its Cavity, though for the moſt part it may be known by a Diſcharge of Matter from the *Anus*. When this is the ſtate of the Fiſtula, there is no heſitation to be made, but immediately putting one Blade of the Sciſſars up the Gut, and the other up the Wound, ſnip the whole length of it. This Proceſs is as adviſeable, when the Inteſtine is not perforated, if the *Sinus* is narrow, and runs upon or very near it; for if the Abſceſs be tented, which is the only way of dreſſing it while the external Orifice is ſmall, as I have here ſuppos'd, it will almoſt certainly grow callous; ſo that the ſureſt means of Cure will be opening the Gut, that proper Applications may be laid to the bottom of the Wound. However it ſhould be well attended to, that ſome *Sinus*'s pretty near the Inteſtine, neither run into nor upon it, in which caſe they

they muſt be open'd, according to the courſe of their Penetration. There are abundance of Inſtances where the Inteſtine is ſo much ulcerated as to give free iſſue to the Matter of the Abſceſs by the *Anus*; but I believe there are none where there is not by the Thinneſs and Diſcolouration of the Skin, or an Induration to be perceiv'd through the Skin, ſome mark of its Direction, which, if diſcover'd, may be open'd into with a Lancet, and then it becomes the ſame Caſe as if the Matter had fairly pointed.

IF the *Sinus*'s into and about the Gut are not complicated with an Induration, and you can follow their courſe, the mere opening with Sciſſars, or a Knife guided on a Director, will ſometimes ſuffice; but it is generally ſafer to cut the piece of Fleſh ſurrounded with theſe Inciſions quite away, and when it is callous abſolutely neceſſary, or the Calloſities muſt be waſted afterwards by Eſcharotick Medicines, which is a tedious and cruel Method of Cure.

WHEN the Fiſtula is of long ſtanding, and we have choice of time for opening it, a Doſe of Rhubarb the Day before the Operation will be very convenient, as it not only will empty the Bowels, but alſo prove an Aſtringent

gent for a while, and prevent the Miſchief of removing the Dreſſings in order to go to ſtool.

IT ſometimes happens that the Orifices are ſo ſmall, as not to admit the entrance of the Sciſſars, in which caſe ſponge-Tents muſt be employ'd for their Dilatation.

IN performing theſe Operations on the *Anus*, I do not think any Inſtrument ſo handy as the Knife and Sciſſars; almoſt all the others that have been invented to facilitate the Work, are not only difficult to manage, but more painful to the Patient: Nor do I caution againſt cutting the whole length of the Sphincter, Experience having ſhewn it may be done with little danger of an Incontinence of Excrement; and in fact the Muſcle is ſo ſhort, that it muſt generally be done in Dilatations of the Inteſtine.

THE worſt Species of Fiſtula is that communicating with the Bladder, where the *Proſtate Gland* is primarily concerned. This generally takes its riſe from a former Gonorrhœa, and appears externally firſt in *Perinæo*, and afterwards increaſing more towards the *Anus*, burſts out in various Orifices, through the Skin, which ſoon becomes callous and rotten, and the Urine paſſing partly through theſe Orifices, will

will often excite as much Pain, and of the ſame kind, as a Stone in the Bladder.

HAVING met with none of theſe Inſtances that I could not trace from a Clap, I have been induced in the trial of Cure, to practiſe Salivating, which aſſiſts very much in healing the Wound after the Operation. The manner of opening this Fiſtula, is by cutting out the callous Skin and Eminences down as deep as the *Accelerator Urinæ*, and ſomewhat deeper between that Muſcle and *Erector Penis*, if the Indurations lie there. The Operation is ſevere, but very well rewards the Pain. It is not to be expected however, if there are many *Sinus*'s into the Bladder, that they will all certainly be healed; but they will be reduced to one or two, almoſt all the Urine come by the *Urethra*, and the Pain be quite remov'd, of which Succeſs I have had two or three remarkable Inſtances under my Care.

THE particular Method of Dreſſing theſe Abſceſſes of the *Anus* may be learn'd in the Introduction.

CHAP.

CHAP. XV.

Of the Puncture *of the* PERINÆUM.

THIS Operation is perform'd when the Bladder is under ſuch a ſuppreſſion of Urine as cannot be relieved by any gentler Methods, nor by reaſon of the Obſtruction in its Neck, or the *Urethra*, will admit of the Introduction of a Catheter. The manner of doing it, as deſcribed by moſt Writers, is by puſhing a common Trocar from the place where the external Wound in the old way of cutting is made, into the Cavity of the Bladder, and ſo procuring the iſſue of the Water through the Canula; but others refining upon this Practice, have ordered an Inciſion to be carried on from the ſame Part into the Bladder, and then to inſinuate the Canula: But in my opinion, both the Methods are to be rejected, in favour of an Opening a little above the *Os Pubis*: For beſides that it is not eaſy to guide the Inſtrument through the proſtate Gland into the Bladder, the neceſſity of continuing it in a Part already very much inflam'd and thicken'd,

thicken'd, ſeldom fails to do miſchief and even to produce a Mortification.

SOME time ſince, a Gentlewoman complain'd of a difficulty of making Water, which ſhe voided by Drops with exceſſive Pain, and ſoon after the urinary Paſſage became totally obſtructed. Having in vain attempted to paſs the ſmalleſt Catheter I could get, I introduc'd my Finger into the *Vagina*, and felt a very hard Tumour about the Neck of the Bladder: The Patient had not voided any Water for five Days, and being in the utmoſt Agony, and as we judg'd within a few Hours of dying, I put in Practice the Inciſion above the *Os Pubis*, making the Wound of the Skin about two Inches long, and that of the Bladder about half an Inch: Having emptied by this means a prodigious quantity of Water, I kept the Orifice open with a hollow Tent, 'till ſuch time as the Tumour ſubſided, which with proper Medicines, it did by degrees, and in about ſix Weeks all her Water came the right way, and ſome time after ſhe recover'd perfect Health.

CHAP.

CHAP. XVI.

Of the STONE.

STONY Concretions are a Diſeaſe incident to ſeveral Parts of the Body, but I ſhall treat only of thoſe form'd in the Kidneys and Bladder: Hitherto there has never been given any ſatisfactory Account of the Cauſes of this concreting Diſpoſition in the Fluids, and though there may be ſome Propriety in conſidering the Sand of Urine in the ſame light as the Tartar of Wine, from their Similitude in ſeveral Experiments, yet we cannot infer from thence what does immediately produce it; at leaſt it is not with any certainty to be imputed to a particular Diet or Climate, which however are the Cauſes commonly aſſign'd; ſince we ſee that in all Countries, and amongſt all Ranks of People, as much among the ſober as the luxurious, the Stone is a frequent Diſtemper; and though the great numbers cut at the Hoſpitals of *Paris*, where the Water of the *Seine* is ſo remarkable for its quantity of Stone, ſeems to favour the Opinion of its being generated by parti-

particular Fluids receiv'd into the Blood, yet I believe, upon enquiry, this famous Inſtance will not appear concluſive, ſince moſt of thoſe Patients come from the Provinces, or diſtant Villages where that River does not paſs; and as to the Inhabitants of *Paris* itſelf, by what I was able to learn of the Surgeons there, the number of thoſe afflicted with the Stone amongſt them, is pretty nearly in the ſame proportion as in *London:* From which conſiderations, and the circumſtance of ſo many more Children having the Stone than Men, one would be inclin'd to think the Diſpoſition is much oftner born with us than acquired by any external means.

IT is certain the Urine generally abounds with Matter proper to compoſe a Stone, and perhaps if it could grow cold in the Bladder, it would always depoſite the Matter there, as it does on the ſides of the Chamber-pot, tho' the Coats of the Bladder being cover'd with a Mucilage, makes them more unfit than the ſides of the Pot to attract the ſtony Particles; but we ſee when once a hard Body is inſinuated into the Bladder, it ſeldom fails to become the Nucleus of a Stone, whether it be a large piece of Gravel, a Needle, a Bullet, or any other firm extraneous Subſtance.

FROM the monſtrous Increaſe of ſome Stones in a ſmall time, and the Ceſſation of growth for many Years of others, we may be perſuaded that the Conſtitution varies exceedingly at different times, with regard to theſe ſtony Separations, and from the Appearances of moſt Stones, when artfully ſaw'd through, we may gather that this Variation of Conſtitution does not ſhew itſelf only in the quantity of Gravel added to the Stone, but the quality of it alſo; ſo that a red uniform Stone of an Inch diameter, may perhaps at half that ſize have been a ſmooth white one, at a quarter, a brown Mulberry one, and ſo on at different times altering in its Species. Hence, (from the Appoſition of different colour'd Gravel,) ariſes for the moſt part the laminated Appearance of a Stone; though ſometimes the *Laminæ* are very nearly of the ſame Colour and Compoſition, and in this caſe their Formation ſeems to be owing to the want of Accretion in the Stone for a certain time, during which, its Surface by rubbing againſt the Coats of the Bladder, and its Attrition from the Stream of Urine, becomes ſmooth and compact; ſo that when more freſh looſe Gravel adheres to it, its different Denſity in that Part will neceſſarily make the Streaks we

ſee

ſee in a Section of the Stone, which are only the outſide Surfaces of each *Lamina*.

THAT the ceaſing to grow gives them this laminated Form, and not any particular Diſpoſition in Sand to ſhoot into ſuch a Shape, is probable from the Examination of ſome other Stones, in which a great quantity of Gravel is firſt collected without any Nucleus, into a ſpongy uniform Maſs, and after that is cover'd with ſeveral *Laminæ*.

'TIS no wonder that Stones ſo generally form in the Kidneys, ſince the Diſpoſition of the Urine will naturally ſhew itſelf as ſoon as it is ſeparated into the *Pelvis*, that is, the ſtony Particles having as ſtrong an endeavour to unite with one another in the Kidneys as the Bladder, will conſequently from meeting firſt there, generally produce Gravel and Stone in that part.

SMALL Stones and Gravel are frequently voided without Pain, but ſometimes they collect and become very large in the Kidneys, in which caſe a Fit of the Stone in that part is the Cure, from the Inflammation and Pain occaſioning convulſive Twitches, which at laſt expel them: But in this Diſeaſe the Patient is very much relieved by ſeveral kinds of Remedies, ſuch as the Mucilaginous, the Sapo-

naceous, *&c.* ſome of which lubricate, and others both lubricate and ſtimulate. The Sand in paſſing through the *Ureters* is very much forwarded by the force of the Urine, which is ſo conſiderable, that I have ſeen a Stone that was obſtructed in the *Ureter* in its firſt Formation, perforated quite through its whole length, and form a large Channel for the Stream of Urine. The *Ureters* being very narrow, as they run over the *Pſoas* Muſcle, and alſo at their Entrance into the Bladder, make the Movement of the Stone very painful and difficult in thoſe Parts, but there is ſeldom ſo much trouble after the firſt Fit, for when once they have been dilated they generally continue ſo: I have often ſeen them as big as a Man's Finger, but they have been found much larger.

WHEN once a Stone has acquir'd a moderate ſize in the Bladder, it uſually occaſions the following Complaints: Frequent Inclination to make Water, exceſſive Pain in voiding it drop by drop, and ſometimes a ſudden ſtoppage of it if diſcharged in a ſtream; after urining great Torture in the *Glans Penis*, which laſts one, two, or three Minutes; and in moſt Conſtitutions the violent ſtraining makes the *Rectum* contract, and expel its Excrements,

or

or if it be empty occaſions a *Teneſmus*, which is ſometimes accompany'd with a *Prolapſus Ani*; the Urine is often tinctur'd with Blood from a Rupture of the Veſſels, and ſometimes pure Blood itſelf is diſcharged; ſometimes the Urine is very clear, but frequently there are great quantities of ſlimy Sediment depoſited at the bottom of it, which is no other than a preternatural Separation of the Mucilage of the Bladder, but has been often miſtaken for *Pus*, whence has aroſe an opinion that Ulcers of the Bladder are common, tho' in fact the Diſtemper is very rare.

THESE are the Symptoms of the Stone in the Bladder, yet by no means are they infallible, ſince a Stone in the *Ureter* or Kidneys, or an Inflammation of the Bladder from any other Cauſe, will ſometimes produce the ſame effects; but if the Patient cannot urine except in a certain Poſture, 'tis almoſt a ſure ſign the Orifice is obſtructed by a Stone; if he finds Eaſe by preſſing againſt the *Perinæum* with his Fingers, or ſitting with that part upon a hard Body, there is little doubt to be made that the eaſe is procur'd by taking off the weight of the Stone; or laſtly, if with moſt of theſe Complaints he thinks he can feel it roll in his Bladder, it is hardly poſſible

to be miſtaken; however the only ſure Judgment to be form'd is from ſearching.

THAT we ſhould not readily diſtinguiſh the Complaints of the Stone from many other Affections of the Bladder, is not very ſurpriſing, when we reflect that a Fit of the Stone is nothing but an Inflammation of its Coats, which though it be excited by the Stone, requires a diſpoſition in the Blood to produce it; for if the Complaints in a Fit were owing to the immediate Irritation of the Bladder, it ſhould follow that the Stone being always the ſame, the Fit would be continual; but beſides that all Patients have conſiderable Intervals of eaſe, (often of many Months) except in thoſe Caſes where the Stone is either very large or pointed, there are Inſtances of ſome few happy Conſtitutions that have no Pain at all, even after having for a certain time ſuffered very much.

To prevent the Violence and frequent Returns of the Fits of the Stone, Bleeding and gentle Purging with Manna are beneficial, abſtaining alſo from Malt-Liquors and exceſs of Eating and Drinking is very ſerviceable; but the Milk-Diet and Honey are the greateſt Preventives not only of Inflammation, but perhaps ſometimes too of the farther Accretion of the Stone.

FROM

FROM considering the Diſorders of the Stone in this light, and the frequent Intervals of Eaſe that happen without the aſſiſtance of Medicine, we cannot wonder that ſo many Patients have believ'd the Stone diſſolv'd when they have been under any particular Regimen, and that in all Ages there have been many People deceived for a length of time, by a ſuppos'd Diſſolvent, tho' we have not hitherto known any ſafe one, 'till lately it has been diſcovered that Lime and Soap are often efficacious in that Caſe.

CHAP. XVII.

Of SEARCHING.

THE Patient being laid on a horizontal Table, with his Thighs elevated and a little extended, paſs the Sound with the concave part towards you, 'till it meets with ſome reſiſtance in *Perinæo*, a little above the *Anus*, then turning it without much force, puſh it gently on into the Bladder, and if it meets with an obſtruction at the Neck, raiſe its extremity upwards by inclining the Handle of it towards you, or if it don't then ſlip in,

withdraw it a quarter of an Inch, and introducing your Fore-finger into the *Rectum*, lift it up, and it will ſeldom fail to enter: There is ſome Art in turning the Sound in the proper place of the *Urethra*, which Surgeons not vers'd in this Operation cannot ſo well execute, therefore they may paſs the Inſtrument with the Concave ſide always towards the *Abdomen* of the Patient, obſerving the ſame Rule at the entrance into the Bladder, as in the other Method. The cauſe of this obſtacle is frequently a ſmall projection of the Orifice of the Bladder in the *Urethra*, like that of the *Os Tincæ* in the *Vagina*, which occaſions the end of the Sound to ſlip a little beyond it.

'TIS not to be ſuppos'd that by ſearching one can poſitively judge of the ſize and form of a Stone, and indeed the frequency of the Fits, and violence of the Symptoms are a better Rule to go by, though whoever ſhall think himſelf capable of diſtinguiſhing abſolutely the difference of Stones even by theſe Circumſtances, will ſometimes be miſtaken, ſince the frequency and violence of the Pain depend not always merely upon their Magnitude or Shape, and there are ſome Inſtances, where a Stone of ſix Grains weight has for ſeveral Months given more pain in one Perſon, than

than a much larger has in another, though no doubt *Cæteris paribus*, a large or a rough Stone, is worſe than a ſmall or a ſmooth one.

THOUGH upon ſearching we are aſſur'd of a Stone in the Bladder, we are not, without further Inquiry, to operate immediately, ſince there are ſometimes Obſtacles that forbid the Operation, either abſolutely, or only for a certain time; among theſe, that of greateſt conſequence is the Gravel or Stone in the Kidneys, which is known by the Pain in the Loins, Vomitings, Contractions of the Teſticles, Numbneſs of the Thighs, and often by Matter which the Inflammation produces in the Kidneys. The Objections of leſs weight, and which frequently are remov'd, are a Fit of the Stone, a Cough, a Hectick, and being emaciated by long Pain; exceſſive hot or cold Weather are likewiſe Hindrances; but in extremity of Danger, theſe laſt Conſiderations may be diſregarded, though no doubt very hot Weather is more inconvenient and dangerous than cold, as lying a-bed is then more troubleſome, and the Urine much ſalter.

DIFFERENCE of Age makes an extreme difference in Danger, Infants and youug People almoſt always recovering; but ſtill the Operation is adviſeable on thoſe advanced in years,

years, though it is not attended with near the ſame ſucceſs. This Operation is perform'd four ſeveral ways, all which I ſhall deſcribe with their particular Inconveniencies, that we may the more eaſily pitch upon that which has the leaſt.

BEFORE we perform any of them, 'twill be proper to prepare the Patient with a gentle Purge the preceding day, and a Clyſter early in the morning, which will be of great ſervice in cooling the Body, and making ſome of the Operations leſs dangerous where the *Rectum* is liable to be wounded when full.

CHAP. XVIII.

Of the LESSER APPARATUS, *or Cutting on the* GRIPE.

THE moſt ancient way of cutting for the Stone is that deſcrib'd by *Celſus*, and known by the name of *Cutting on the Gripe*; though ſince the time of *Johannes de Romanis*, it is alſo called, *Cutting with the Leſſer Apparatus*, to diſtinguiſh it from his new Method, which on account of the many Inſtruments employ'd

employ'd in it, is call'd *Cutting with the greater Apparatus.* The manner of doing the Operation is this. You firſt introduce the Fore-finger and Middle-finger of the left Hand, dipt in Oil, up the *Anus*, and preſſing ſoftly with your right Hand above the *Os Pubis*, endeavour to bring the Stone towards the Neck of the Bladder; then making an Inciſion on the left ſide of the *Perinæum*, above the *Anus*, directly upon the Stone, you turn it out through the Wound, either with your Fingers or a Scoop.

THIS way of Cutting was attended with many Difficulties, for want of proper Inſtruments to direct the Inciſion, and extract the Stone, when it lay beyond the reach of the Fingers, which in a large Bladder was frequently the Caſe; ſo that 'tis ſtrange *Celſus* confin'd the Operation to the Age between Nine and Fourteen, ſince it is much eaſier to be perform'd in Infancy, than at thoſe Years; and it plainly appears from his account of it, that many died from the Violence done to the Bladder in endeavouring to bring the Stone forwards, though the Operators fail'd in their Attempt, and the Patients were not cut.

THE Wound of the Bladder in this Operation is made in the ſame Place as is now practis'd in the Lateral Method; but its being

ing impracticable on ſome Subjects, and uncertain on all others, has made it univerſally exploded; ſo that no body now makes an Inciſion without the direction of a Staff, unleſs a Stone intirely prevents the Introduction of it, by preſſing againſt, and ſtopping up the Neck of the Bladder; and in this caſe, when we cut directly upon the Stone, it is much ſafer to puſh it back farther into the Bladder, and lay hold of it with the Forceps, than endeavour with the Scoop or Fingers to force it outwards, which Circumſtance alone makes it different from *Celſus*'s Method. It muſt be diſtinguiſh'd however, when I ſpeak of puſhing the Stone back, that I ſuppoſe it in the Neck of the Bladder; for it frequently happens that it lies at the Extremity of the *Urethra*, on the outſide of the Bladder; in which caſe the Wound of the *Urethra* may be made large enough to turn it out with the Fingers, or the end of ſome ſlender Inſtrument.

CHAP.

CHAP. XIX.

Of the GREATER APPARATUS, *or the* Old Way.

THIS Method of Cutting, invented by *Johannes de Romanis*, and publiſhed by his Scholar *Marianus* in the Year 1524, has at different times, and with different People, varied conſiderably in ſome of its Proceſſes, and particularly with regard to the uſe of certain Inſtruments. What I ſhall deſcribe will be the manner in which it is now practis'd with all its Improvements.

HAVING laid the Patient on a ſquare Horizontal Table, three foot four inches high, with a Pillow under his Head, let his Legs and Thighs be bent, and his Heels made to approach his Buttocks, by tying his Hands to the bottom of his Feet with a couple of ſtrong Ligatures about two yards long; and to ſecure him more effectually from ſtruggling, paſs a double Ligature under one of his Hams, and carry the four Strings round his Neck to the other Ham; then paſſing the Loop underneath it, make a Knot by threading one of the ſingle Ends

Ends through the Loop: After this, the Thighs being widen'd from each other, and firmly ſupported by proper Perſons, you introduce the Staff, having firſt dipt it in Oil, which muſt be held by your Aſſiſtant a little leaning on the left ſide of the Seam in *Perinæo*, and beginning the external Wound juſt below the *Scrotum*, (which muſt be held out of the way) you continue it downwards to within two Fingers breadth of the *Anus*; then leaving that Direction, you ſlip the Knife forwards in the Groove, pretty far into the Bulbous Part of the *Urethra*; or, as there is ſome danger of wounding the *Rectum* in the continuation of the Inciſion, you may turn the Knife with the back towards it, and make this part of the Inciſion from within outwards. Should a very large Veſſel be cut, it will be adviſeable to tie it before you proceed any farther in the Operation. When the Wound is made, ſlide the Gorget along the Groove of the Staff into the Bladder; and to do it with more ſafety, when the Beak of it is received in the Groove, 'twill be proper to take the Staff your ſelf in your left Hand; for if the Aſſiſtant ſhould unwarily, either incline the Handle of it too much towards you, or not reſiſt enough to the force of the Gorget, it is very apt

apt to slip out of the Groove, between the *Rectum* and the Bladder, which Accident is not only inconvenient to the Operator for the present, but is attended for the most part with very bad Consequences. The Gorget being pass'd, dilate the *Urethra* and Neck of the Bladder with your Forefinger, and introduce the Forceps into the Bladder, keeping them shut 'till you touch the Stone, when you must grasp it with a moderate force, and extract it by pulling downwards towards the *Rectum*.

CHAP. XX.

Of the HIGH OPERATION.

THIS Method of Cutting for the Stone was first publish'd in the year 1561, by *Pierre Franco*, who in his Treatise of *Hernia*'s, says he once perform'd it on a Child with very good Success, but discourages the farther Practice of it. After him *Rossetus* recommended it with great zeal in his Book intitled *Partus Cæsareus*, printed in 1591; but he never perform'd the Operation himself. Monsieur *Tolet* makes mention of its having been

been tried in the *Hotel Dieu*, but without entering into the particular Cauſes of its Diſcontinuance, ſays only, that it was found inconvenient. About the year 1719, it was firſt done in *England* by Mr. *Douglas*, and after him practis'd by others. The manner of performing it, with the Improvements made ſince *Franco*'s Operation, is this.

THE Patient being laid on a ſquare Table, with his Legs hanging off, and faſtened to the ſides of it by a Ligature paſs'd above the Knee, his Head and Body lifted up a little by Pillows, ſo as to relax the Abdominal Muſcles, and his Hands held ſteady by ſome Aſſiſtants; inject through a Catheter into the Bladder as much Barley-water as he can bear, which in a Man is often about eight Ounces, and ſometimes twelve: For the eaſier doing this, an Ox's *Ureter* may be tied to the Extremity of the Syringe, and Handle of the Catheter, which being pliable, will prevent any painful motion of the Inſtrument in the Bladder.

THE Bladder being fill'd, an Aſſiſtant, in order to prevent the Reflux of the Water muſt graſp the *Penis* the moment the Catheter is withdrawn, holding it on one ſide in ſuch a manner, as not to ſtretch the Skin of the *Abdomen*; then with a round-edged Knife make

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an Inciſion about four inches long, between the *Recti* and Pyramidal Muſcles, through the *Membrana Adipoſa*, as deep as the Bladder, bringing its Extremity almoſt down to the *Penis*; after this taking a crooked Knife, continue the Inciſion into the Bladder, carrying it a little under the *Os Pubis*, and immediately upon the Water's flowing out, introduce the Forefinger of your left Hand, which will direct the Forceps to the Stone.

THIS Method was at firſt received with great Applauſe in *London*, but after ſome Trial was rejected for the following Inconveniencies:

IT ſometimes happens that the Bladder, notwithſtanding the Injection, ſtill continues ſo deep under the *Os Pubis*, that the *Peritonæum* being neceſſarily wounded firſt, the Inteſtines puſh out immediately at the Orifice, and the Urine afterwards empties into the *Abdomen*, in which caſe hardly any recover. The Injection itſelf is exceeding painful, and however ſlow the Fluid be injected, it diſtends the Bladder ſo much more ſuddenly than the Urine from the Kidneys does, and ſo much faſter than it can well bear, that it not only is ſeldom dilated enough to make the Operation abſolutely ſecure, but is ſometimes even

burſt, or at leaſt its Tone deſtroy'd by the haſty Dilatation. What adds to the Danger here, is the poſſibility of meeting with a contracted indurated Bladder, which is a circumſtance ſometimes attending on the Stone, and indeed an exceeding dangerous one in all the other Methods, but would be frightful in this, by reaſon not only of the neceſſity of wounding the *Peritonæum*, but of the difficulty of coming at the Stone. If the Stone be very ſmall, it is hard to lay hold of it with the Forceps, and in a fat Man the Fingers are not long enough for that purpoſe. If there are many little Stones, it will ſcarce happen that more than one at a time can be extracted; and if the Stone breaks, it not only is impracticable to take it all away in the Operation, but alſo, from the ſupine Poſture of the Patient, it will generally remain in the Bladder; whereas in the other Methods, for the moſt part, it works it ſelf out with the Urine. But even ſuppoſing that the Operation itſelf is proſperous, the conſequences generally are very troubleſome, for the Urine iſſuing out at an Orifice where there is no Deſcent, ſpreads itſelf upon the *Abdomen*, and makes very painful Excoriations; though what is ſtill worſe, it ſometimes inſinuates itſelf into the Cells

Cells between the Bladder and *Abdominal* Muſcles, and together with the Inflammation excited by the Operation, brings on a Suppuration there, which is always difficult to manage, and frequently mortal.

CHAP. XXI.

Of the LATERAL OPERATION.

THIS Method was invented by an Eccleſiaſtick, who call'd himſelf *Frere Jaques*: He came to *Paris* in the Year 1697, bringing with him abundance of Certificates of his Dexterity in operating; and making his Hiſtory known to the Court and Magiſtrates of the City, he got an Order to cut at the *Hotel Dieu*, and the *Charité*, where he perform'd this Operation on about fifty Perſons. His Succeſs did not anſwer the Promiſes he had made, and from that time his Reputation ſeems to have declin'd in the World, if we may give credit to *Dionis*, who has furniſh'd us with theſe Particulars.

HE was treated by the Surgeons of thoſe times as ignorant and barbarous; and though

upon enquiry into the Parts that ſuffer in this Method, it was once the opinion of ſome of the moſt eminent amongſt them, that it might be made a moſt uſeful Operation, if a few Imperfections in the execution of it were remov'd, yet after having given this Judgment, they ſuddenly dropt the purſuit, for no other reaſon, to all appearance, but that they would not be oblig'd to any one but a regular Surgeon for a Diſcovery of ſo great conſequence. The principal Defect in his manner of cutting was the want of a Groove in his Staff, which made it difficult to carry the Knife exactly into the Bladder; nor did he take any care of his Patients after the Operation, ſo that for want of proper Dreſſings ſome of the Wounds prov'd Fiſtulous, and other ill conſequences enſued: But I am inclin'd to think he ſucceeded better, and knew more at laſt than is generally imagin'd; for I remember to have ſeen when I was in *France*, a ſmall Pamphlet, publiſh'd by him in the Year 1702, in which his Method of operating appear'd ſo much improv'd, that it differ'd in nothing, or but very little, from the preſent Practice. He had by this time learnt the neceſſity of dreſſing the Wound after the Operation, and had profited ſo much from

from the Criticiſms of *Meſſieurs Mery*, *Fagon*, *Felix*, and *Hunauld*, that he then uſed a Staff with a Groove, and what is more extraordinary, had cut thirty eight Patients ſucceſſively at *Verſailles*, without loſing one, as appear'd by a Certificate annex'd to the Piece.

AMONGST many that ſaw *Frere Jaques* operate, was the famous Profeſſor *Rau*, who carried his Method into *Holland*, and practiſed it with amazing Succeſs: He never publiſh'd any account of it himſelf, though he admitted ſeveral to his Operations; but ſince his Death his Succeſſor *Albinus*, Profeſſor of Anatomy and Surgery at *Leyden*, has given the world a very circumſtantial detail of the ſeveral Proceſſes of it, and mentions as an improvement upon *Frere Jaques*'s manner, that he made his Inciſion through the Bladder beyond the Proſtate; but whoever will try the Experiment of making a Wound in that Place, without touching the Proſtate, on a Staff, ſuch as *Albinus* has delineated, which is of an ordinary length, will find it impracticable; for if by inclining the Staff a little towards the *Abdomen* and right Groin, you endeavour to raiſe that part of the Bladder towards the Wound, it ſlips out all but the very end of it into the *Urethra*, and leaves no Direction for the Knife.

Beſides, that he cut the Proſtate may be gather'd from the event of ſome Caſes which Mr. *Cheſelden* publiſh'd, when he firſt undertook the Lateral Operation: He conſider'd it as almoſt impoſſible to make the Inciſion in this place, unleſs the Bladder was diſtended, to which end he injected as much Barley-water as the Patient could ſuffer, which made it protuberate forwards, and lie in the way of the external Wound, ſo that leaving the Staff in, he cut very eaſily upon it. The Operations were exceeding dextrous, but the Wound of the Bladder retiring back when it was empty, did not leave a ready Iſſue for the Urine, which inſinuatiug it ſelf amongſt the neighbouring Muſcles and Cellular Membranes, deſtroy'd four of the ten that he practis'd this Method upon, and ſome of the others narrowly eſcaped.

IF therefore this was the conſequence of a Wound of the Bladder beyond the Proſtate in ſo many inſtances, and we find by experience that it is exceeding difficult in ſome Men to carry the Inciſion even ſo far as the Proſtate, ſure it is poſſible that *Albinus* may be miſtaken in his Deſcription; or even that *Rau* himſelf, if he was of that opinion, might be deceived in the Parts he wounded, ſince we know it was generally thought, 'till within theſe few years,

years, that the Bladder itſelf was cut in the old Way.

AFTER this unſucceſsful Trial, Mr. *Cheſelden* made uſe of the following Method, which is now the Practice of moſt *Engliſh* Operators.

THE Patient being laid on a Table, with his Hands and Feet tied and the Staff paſſed as in the old Way, let your Aſſiſtant hold it a little ſlanting on one ſide, ſo that the Direction of it may run exactly through the middle of the left *Erector Penis* and *Accelerator Urinæ* Muſcles; then make your Inciſion through the Skin and Fat very large, beginning on one ſide of the Seam in *Perinæo*, a little above the place wounded in the old Way, and finiſhing a little below the *Anus*, between it and the Tuberoſity of the *Iſchium*: This Wound muſt be carried on deeper between the Muſcles, 'till the Proſtate can be felt, when ſearching for the Staff, and fixing it properly if it has ſlipt, you muſt turn the edge of the Knife upwards, and cut the whole length of that Gland from within outwards, at the ſame time puſhing down the *Rectum* with a Finger or two of the left Hand, by which Precautions the Gut will always eſcape wounding; after which the Operation finiſhes nearly in the ſame manner as with the greater Apparatus.

IF upon introducing the Forceps you do not perceive the Stone readily, you muſt lift up their Handle, and feel almoſt perpendicular for it, ſince for the moſt part, when it is hard to come at, it lies in one of the *Sinus*'s ſometimes form'd on each ſide of the Neck of the Bladder, which project forward in ſuch a manner, that if the Stone lies there, the Forceps paſs beyond it the moment they are through the Wound, ſo that it would be impoſſible to lay hold of it, or even to feel it, if not aware of this Circumſtance.

WHEN the Stone breaks, it is much ſafer to take away the Fragments with the Forceps, than to leave them to be diſcharged with the Urine; and if the pieces are very ſmall, like Sand, a Scoop is the beſt Inſtrument, and preferable to the uſe of Injections.

AS there are hardly any inſtances of more Stones than one, when the Stone taken away is rough; ſo when it is ſmooth and poliſh'd, 'tis almoſt a certain ſign of others behind; on which account an Operator ſhould be careful in that caſe to examine, not only with his Fingers, but ſome convenient Inſtrument, for the remaining ones.

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THE great Inconvenience of the Lateral Operation is the Hæmorrhage which ſometimes enſues in Men, for in Children the danger of it is not worth mentioning; this however is the principal Objection which has prevented its being univerſally practis'd, but in all likelihood it will be more general, when the Merits of the Method are better known, and it is once diſcover'd that the ill Conſequence of moſt of theſe Hæmorrhages is owing more to an Error in operating, than to the nature of the Operation; for I think I can poſitively ſay, that all thoſe Branches of the Hypogaſtrick Artery which lie on this ſide of the Proſtate, may be taken up with the Needle, if the Wound be made large enough to turn it about freely at the bottom; yet this is a Circumſtance that many Surgeons have been deficient in, and inſtead of making it three or four Inches long in a Man, they have ſometimes made it not above an Inch, in which caſe it is not only impoſſible to tie the Veſſels between the Skin and Bladder, but it alſo prevents the proper Application of Lint, or Stypticks to the Artery creeping on the Proſtate, ſo that it is not ſurpriſing the Operation ſhould be diſcountenanced, when the Practice of it is attended with this difficulty.

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IF in the Operation any large Veſſels of the external Wound ſhould be divided, it is adviſeable to tie them before the extraction of the Stone, but the neceſſity of doing this do's not occur once in twenty times: It rarely happens that the Veſſels of the Proſtate burſt open any conſiderable time after the Operation, if they did not bleed during the Performance of it, but as it is the nature of the Symptomatick Fever to dilate the Veſſels, and quicken the Motion of the Blood, 'tis proper to be upon our guard, eſpecially in plethorick People, and endeavour to obviate the Accident by taking away ten or twelve Ounces of Blood from the Arm, and giving an Opiate immediately.

THERE is but one Objection more of any conſequence, which is the danger of wounding the *Rectum*, and this is of no great weight, if the Operator obſerves the Rule I have laid down with regard to that Article.

IN this deſcription I believe I have been ſo far from diſguiſing the Inconveniencies of the Lateral Operation, that before I ſpeak of its Advantages I ſhould once again repeat, that theſe Effuſions of Blood are but very rare, and ſeldom or never mortal, when properly manag'd; of which the World needs no better

ter Proof than the late extraordinary Succeſs we have cut with in our Hoſpitals, which I believe has never been equall'd in any Time, or Country.

IN this Method the remarkable Parts wounded by the Knife are, the *Muſculus Tranſverſalis Penis*, *Levator Ani*, and *Proſtate Gland:* In the old Way, the *Urethra* only is wounded about two Inches on this ſide the Proſtate; and the Inſtruments are forced through the reſt of the Paſſage, which is compos'd of the Bulbous Part of the *Urethra*, the Membranous Part of the *Urethra*, the Neck of the Bladder, and *Proſtate Gland.* This Channel is ſo very narrow, that 'till it be tore to pieces, the Management of the Forceps is exceeding difficult, and it happens frequently that from the tender Texture of the Membranous Part, the Forceps are unwarily puſh'd through it between the *Os Pubis* and Bladder; beſides that in introducing the Gorget upon the Staff, it is apt to ſlip downwards between the *Rectum* and Bladder, both which Inconveniencies are avoided in the Lateral Operation. It is true, the Wound made in the Lateral Method, will not admit of the Extraction of a large Stone without Laceration, as well as in the old Way; but

but in the one caſe the Laceration is ſmall, and made after a Preparation for it by an Inciſion, and in the other all the Parts I have mention'd are tore, without any previous Opening, and which are ſo very tight that the Pain of the Diſtenſion muſt neceſſarily be exceſſive. It is pity the Operators do not in the old Way always ſlide the Knife along the Groove of the Staff, 'till they have quite wounded through the length of the Proſtate, ſince they are convinc'd that by the Extraction of the Stone, it is open'd in a ruder and more dangerous manner than by Inciſion, and without any Advantages from it; becauſe this Opening is made by the finiſhing of the Operation, whereas for want of it before the Extraction, we can hardly widen the Forceps enough to receive a large Stone, and when we do, the Reſiſtance is ſo very great as often to break it, notwithſtanding all our care. However, in both theſe Operations the Surgeon muſt not graſp the Stone with violence, and even in extracting muſt with both Hands to the Branches of his Forceps, reſiſt their ſhutting ſo tight, as the Compreſſion from the Lips of ſuch a narrow Wound would otherwiſe make them: Here I ſpeak of the difficulty of laying hold of a Stone in any part

part of the Bladder, but if it happens to lie in one of the *Sinus*'s before-mention'd, the Forceps are ſo confin'd that it becomes ſtill harder. The Extraction of very large Stones is much more impracticable with the greater Apparatus than by this Method, becauſe of the ſmallneſs of the Angle of the Bones in that part where the Wound is made; ſo that indeed it is neceſſary in almoſt all Extractions to pull the Stone downward towards the *Rectum*, which cannot be done without great violence to the Membranous Parts, and even the ſeparation of one from another, whence follow Abſceſſes and Sloughs about the Wound, which is a circumſtance not known in the Lateral Operation. *Ecchymoſes* follow'd by Suppuration and Gangrene ſometimes ſpread themſelves upon the *Scrotum*, and in ſhort all the Inconveniencies and ill Symptoms that attend upon the Lateral Operation, except the Hæmorrhage, are in a more violent degree incident to the old Way.

AN Incontinence of Urine is very uncommon after the Lateral Operation, and a Fiſtula ſeldom or never the conſequence of it, but the Prevention of a Fiſtula ſeems to depend very much upon the Skill of dreſſing the Wound afterwards, and perhaps it would not ſo often

often happen if the Dreſſing was rightly managed in the old Way, though certainly this Method is much more liable to them, as the Wound is made among Membranes, and more contuſed, and in many, from an Incontinence of Urine is continually kept open. I have ſeen ſome Inſtances indeed in the Lateral Operation, where through neglect the Bladder has remained fiſtulous, but the Wound being in a fleſhy part, I have without great difficulty, got little Granulations to ſhoot up, and heal'd it externally; ſo that at preſent I think a Fiſtula can hardly be accounted one of the Inconveniencies of cutting for the Stone in the Lateral way.

THE manner of treating the Patient after the Operation is pretty nearly this: If it happens that the Veſſels of the Proſtate bleed, dry Lint, or Lint dipp'd in ſome ſtyptick Water, ſuch as *Aqua Vitrioli*, muſt be applied to the Part, and held there with a conſiderable degree of Preſſure for a few Hours, and the Patient may take an Opiate: If the Wound does not bleed, a little dry Lint, or a Pledgit of Digeſtive, laid gently in it is beſt. The Place where the Patient lies ſhould be moderately cool, as Heat not only diſpoſes the Veſſels to bleed afreſh, but generally makes him

him low and faint. If ſoon after the Operation he complains of a Sickneſs at the Stomach, or even a Pain in that part of the *Abdomen* near the Bladder, 'tis not always a ſign of a dangerous Inflammation, but frequently goes off in half an Hour: To aſſiſt however in its removal, a Fomentation put into an Hog's Bladder, and apply'd pretty warm to the Part in Pain, will be of great ſervice: if the Pain increaſes, after two or three Hours, the conſequence is much to be fear'd, and in this caſe bleeding, and emollient Clyſters by way of Fomentation to the Bowels, are immediately neceſſary.

THE firſt good Symptom after the Operation, is the Urine coming freely away, as we then know the Lips of the Bladder and proſtate Gland are not much inflam'd, for they often grow turgid, and ſhut up the Orifice in ſuch a manner as not only to prevent the Iſſue of the Water, but even the Introduction of the Finger or female Catheter, ſo that ſometimes we are forced to paſs a Catheter by the *Penis*. From this Symptom too we learn, that the Kidneys are not ſo affected by the Operation as to ceaſe doing their Office, which though a very rare circumſtance, may poſſibly occur. If the Patient ſhould become languid, and

continue

continue without an Appetite, Bliſters prove very beneficial, which may be applied with great ſafety, and little pain; as there is ſeldom or never any Strangury. About the third or fourth Day a Stool muſt be procur'd by a Clyſter, for it ſeldom comes naturally the firſt time, and this Method muſt be continued as every Man's diſcretion ſhall guide him. As ſoon as the Patient comes to an Appetite, he ſhould be indulg'd in eating light Food, with this Caution, that he do not eat too much at a time; It ſometimes happens that a Fortnight or three Weeks after the Operation one or both Teſticles indurate and inflame; which Diſorder may generally be remov'd by Fomentations and diſcutient Applications; or if a Suppuration enſues, which however is very ſeldom the Caſe, the Abſceſs is not very difficult of Cure.

DURING the Cure the Wound may be fomented once or twice a-day, and if the Buttocks are excoriated by the Urine, let them be anointed with *Nutritum:* The Dreſſing from firſt to laſt is ſeldom any other than with a ſoft Digeſtive, or dry Lint, for the whole Art of healing the Wound conſiſts in the force with which the Doſſil is apply'd; if it be cram'd in hard it becomes a Tent, and prevents

vents the growth of the little tender ſhoots of Fleſh, 'till in proceſs of time, from the continued Diſtenſion, and long Drain of the Urine, the whole Cavity becomes callous, and forms it ſelf into a Fiſtula: On the other hand if the Wound be dreſs'd quite ſuperficially, the external Parts of it being more prone to heal and contract than the internal, the Conſequence will be a degree of Obſtruction to the Urine and Matter, which lying about the Wound of the Bladder, for want of a diſcharge, will indurate that Part, and likewiſe occaſion a Fiſtula. This method of dreſſing is not peculiar to Wounds after cutting for the Stone, but is as applicable to *Fiſtula*'s *in Ano*, and almoſt all Abſceſſes whatſoever; ſo that, the Branch of Surgery which regards the Treatment of hollow Wounds, depends much more on the proper Obſervance of this Rule than the Application of particular Medicines.

CHAP. XXII.

Of the STONE *in the* URETHRA.

IF a ſmall Stone be lodg'd in the *Urethra* near the Glans, it may often be puſh'd out with the Fingers, or pick'd away with ſome Inſtrument, but if it ſtops in any other part of the Channel, it may be cut upon without any inconvenience; the beſt way of doing it is to pull the Prepuce over the Glans, as far as you can, and then making an Inciſion the length of the Stone, through the Teguments, it may be turn'd out with a little Hook or the point of a Probe: The Wound of the Skin ſlipping back afterwards to its proper ſituation, and from the Orifice of the *Urethra*, prevents the Iſſue of the Urine, and very often heals in twenty-four Hours. This is a much leſs painful method of extracting Stones from the *Urethra*, than by any Inſtruments that have hitherto been devis'd.

CHAP. XXIII.

Of the Extraction of the STONE *in* WOMEN.

THE Extraction of the Stone in Women will eaſily be underſtood, ſince the whole Operation conſiſts in placing them in the ſame manner as Men, and without making any Wound, introducing into the Bladder a ſtrait Director, upon that a Gorget, and afterwards the Forceps to take hold of the Stone; all which may be done without difficulty, by reaſon of the ſhortneſs of the *Urethra*. If the Stone proves very large, and in extracting draws the Bladder forwards, 'tis adviſeable to make an Inciſion through the Neck of it, upon the Stone, which not only will facilitate the Extraction, but alſo be leſs dangerous than a Laceration, which would neceſſarily follow. The Dreſſings are Fomentations and emollient Ointments, which ſhould be applied two or three times a-day, and the Patient in other reſpects be treated like Men who have undergone the Operation for the Stone.

PLATE IV.

The EXPLANATION.

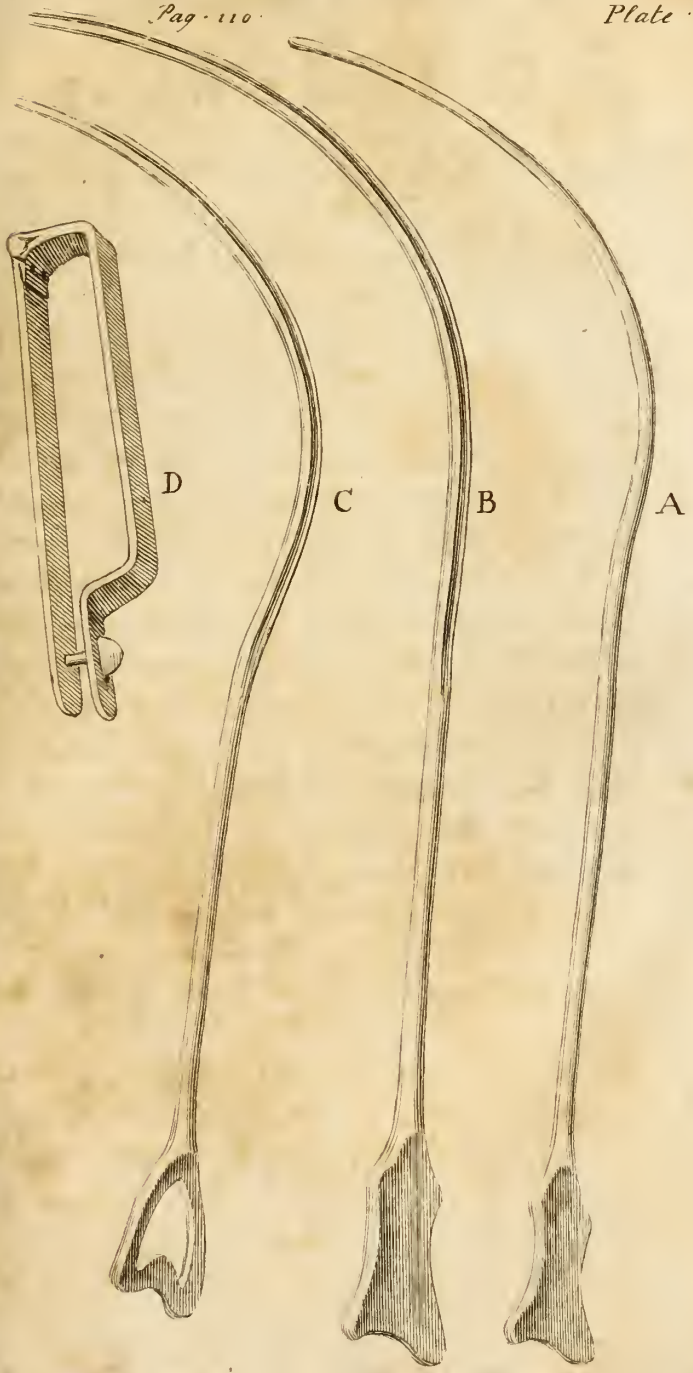
A. A Sound us'd in ſearching for the Stone.

THE Size repreſented here is but a little too large for the youngeſt Children, and may be us'd upon Boys 'till they are thirteen or fourteen years of age; a larger ſhould be employ'd between that age and Adultneſs, when one of about ten Inches, in a right Line from the Handle to the Extremity, is proper. This ſhould be made of Steel, and its Extremity be round and ſmooth.

B. A Staff fit for the Operation on Boys from eight to fourteen years of age. The Staff for a Man muſt be of the ſize of the Sound I have already deſcribed.

C. A Staff ſomething too big for the ſmalleſt Children, but may be us'd upon Boys from about four years of age to eight.

THE Staff has a Groove on its convex ſide, which firſt ſerves as a Direction where to cut, and afterwards receiving the Beak of the Gorget, guides it readily into the Bladder. Care ſhould be taken in making the Groove, that the Edges of it be ſmooth'd down, ſo that they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they cannot wound in paſſing through the *Urethra*. The Extremity ſhould alſo be open, otherwiſe it will be ſometimes difficult to withdraw the Staff when the Gorget is introduced, and preſſes againſt the end of it.

THESE Inſtruments are uſually made with a greater Bending than I have here repreſented; but I think this ſhape more like that of the *Urethra*, and rather more advantageous for making the Inciſion.

D. THE Yoke, an Inſtrument to be wore by Men with an Incontinence of Urine: It is made with Iron, but for uſe muſt be cover'd with Velvet: It moves upon a Joint at one end, and is faſten'd at the other by a Screw and Button, admitted through an Orifice there. It muſt be accommodated to the ſize of the *Penis*, and be taken off whenever the Patient finds an Inclination to make Water. This Inſtrument is exceeding uſeful, becauſe it always anſwers the purpoſe, and ſeldom galls the Part after a fews days wearing.

PLATE V.

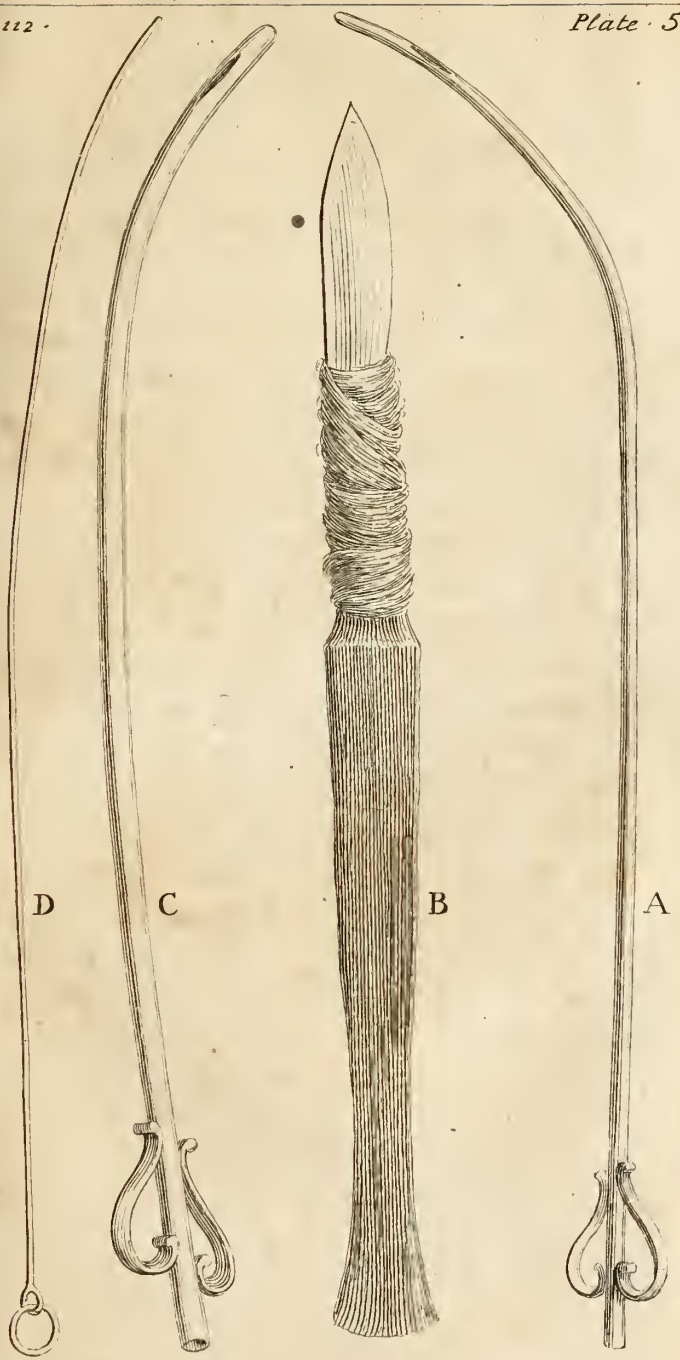
The EXPLANATION.

A. A ſmall Catheter made of Silver. This Inſtrument is hollow, and ſerves to draw off the Urine when under a Suppreſſion: It is alſo us'd in the high Operation to fill the Bladder with Water: Near its extremity are two Orifices, through which the Water paſſes into its Cavity. Care ſhould be taken that the Edges of theſe Orifices are quite ſmooth.

B. THE Knife us'd in cutting for the Stone: It is the ſame I have already deſcribed; but I thought it might not be improper to repeat the Figure with the alteration of a quantity of Tow twiſted round it, which makes it eaſier to be held than any other Contrivance, when we perform the Lateral Operation, and turn the Edge upwards to wound the Proſtate Gland.

C. A Female Catheter, differing from the Male Catheter in being almoſt ſtrait, and ſomething larger.

D. A ſilver Wire to paſs into either Catheter, for the removing any grumous Blood or Matter that clogs them up.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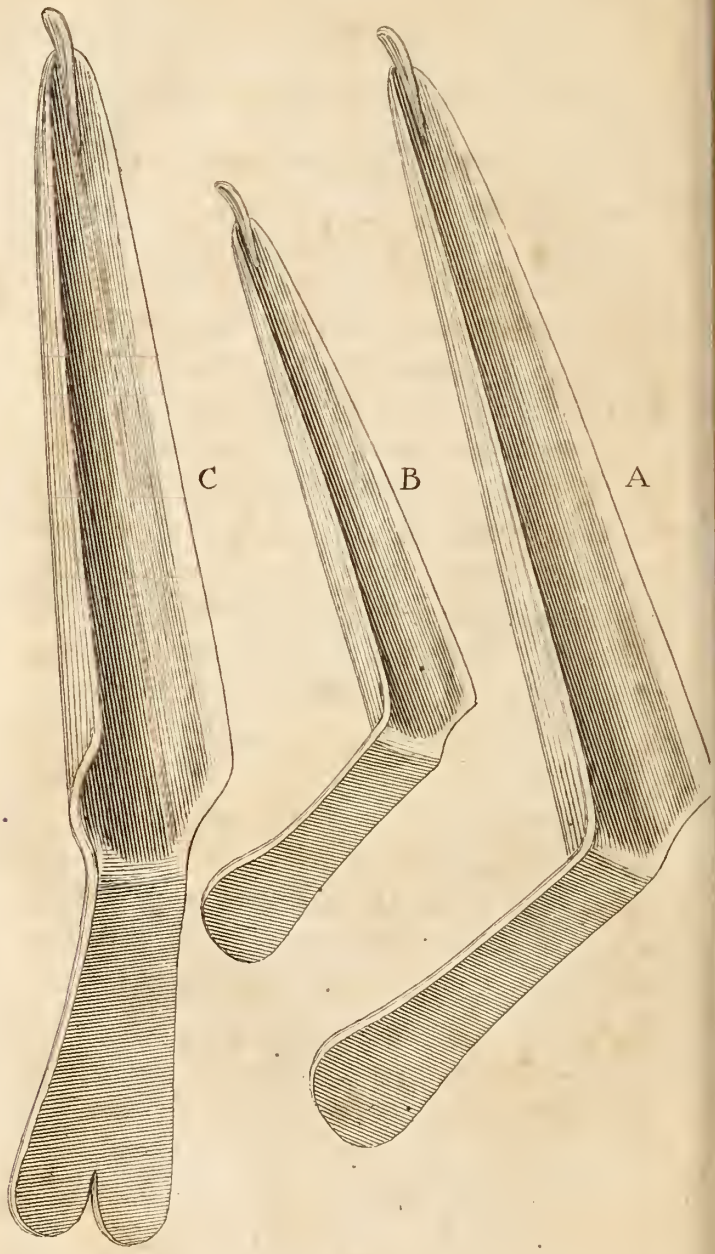
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PLATE VI.

The EXPLANATION.

A. The Gorget us'd upon Men in the Lateral Operation.

B. The Gorget us'd upon Children under five years of age in the Lateral Operation.

A Gorget between the ſizes of theſe two will be fit for Boys from five years of age to fifteen or ſixteen.

THESE Inſtruments are hollow for the Paſſage of the Forceps into the Bladder, and their Handles lie ſlanting, that they may the more readily be carried through the Wound of the Proſtate, which is made obliquely on the left ſide of it. The Beak at the Extremity of the Gorget muſt be ſmaller than the Groove of the Staff which is cut upon, becauſe it is to be receiv'd in the Groove. Care ſhould be taken that the Edges of the Gorget near the Beak are not ſharp, leſt inſtead of dilating the Wound, as it ought, it ſhould only cut on each ſide when introduc'd; in which Caſe it would be difficult to carry the Forceps into the Bladder.

C. A Gorget, with its Handle exactly in the middle; this ſhap'd Inſtrument is us'd in

the old Way. All the Gorgets ſhould be made of Steel.

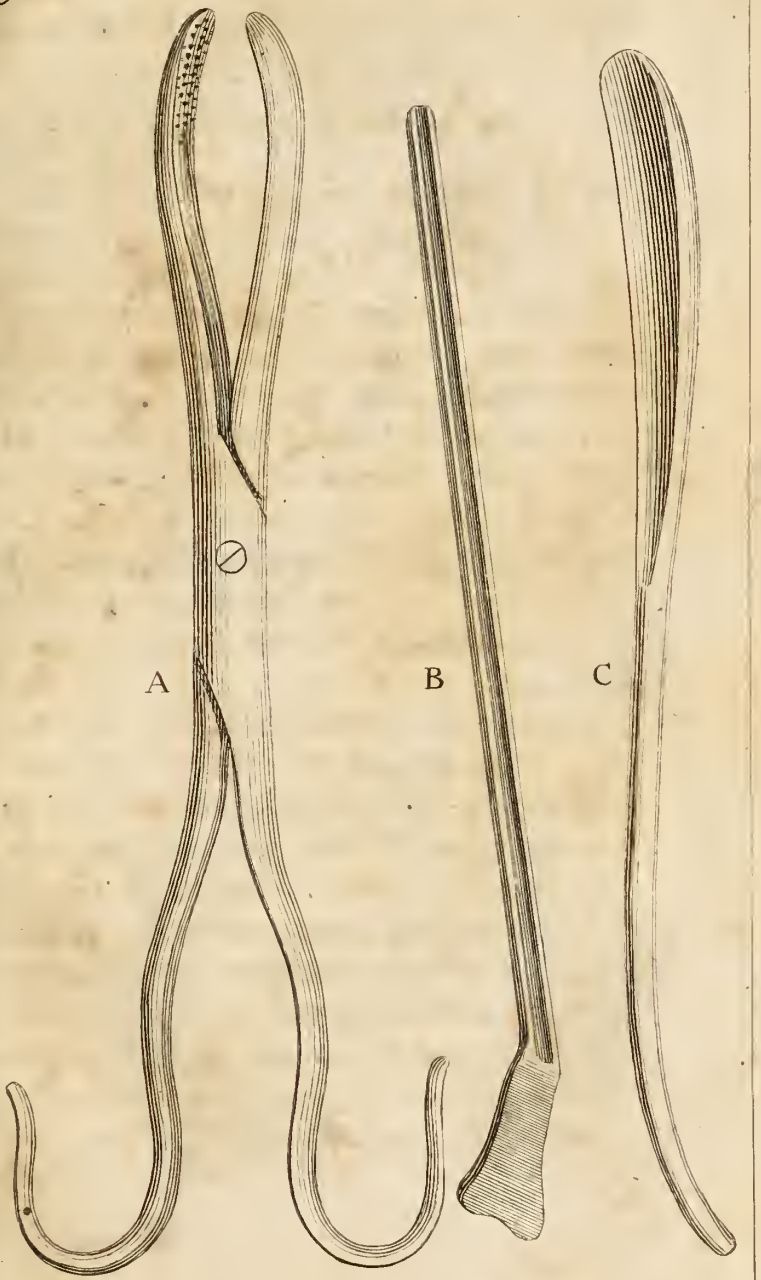
PLATE VII.

The EXPLANATION.

A. THE Forceps for extracting the Stone. Theſe are repreſented a little open, that the Teeth may be better ſeen withinſide.

THIS Inſtrument muſt be of different Sizes for different Ages and Stones, from the length of that in the Copper-plate, to one of near a foot long; but the Forceps of about eight inches long will be found moſt generally uſeful. The number neceſſary to be furniſh'd with, will be four or five.

GREAT care ſhould be taken by the Makers of this Inſtrument, that it move eaſy upon the Rivet, that the extremity of the Chops do not meet when they are ſhut, and particularly that the Teeth be not too large, leſt in entring deep into the Stone they ſhould break it: It is of conſequence alſo that the Teeth do not reach farther towards the Joint than I have here repreſented, becauſe a ſmall Stone, when receiv'd into that Part, being held faſt there, would dilate the Forceps exceſſively,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ſively, and make the Extraction difficult; on which account the inſide of the Blades near the Joint ſhould be ſmooth, that the Stone may ſlip towards the Teeth.

B. A Director made of Steel, us'd for the Direction of the Gorget, in the Extraction of the Stone from Women.

C. A Scoop to take away the Stone when it is broke into ſmall pieces like Sand. The ſmall end is uſeful in ſearching for a Stone in the Bladder, when the Wound is made into it. This Inſtrument is made of Steel.

CHAP. XXIV.

Of the EMPYEMA.

THE Operation for the *Empyema* generally implies an artificial Opening made into the Cavity of the *Thorax*, by which we evacuate any Fluid that lies there extravaſated, and is become troubleſome by its weight and quantity. The Fluids deſcribed as neceſſary to be voided by this Operation, are Blood, Matter, and Water; but I am inclin'd to think that upon enquiry, either into the Reaſon or Succeſs

Succeſs of practiſing in all theſe Inſtances, we ſhall be induced to diſcard it as uſeleſs and pernicious in the two firſt, and confine its advantages wholly to the laſt.

WHEN Blood is the Fluid ſuppos'd to require Evacuation by this Method, 'tis always extravaſated through ſome Wound of the Veſſels of the Lungs or *Thorax*, and being diſcharged in great quantities on the Diaphragm, is ſaid to oppreſs Reſpiration 'till let out by ſome convenient Perforation, made in the moſt depending part of that Cavity, which is the only kind of Perforation into the *Thorax* diſtinguiſh'd by the name of the *Operation for the Empyema:* But if the Blood-Veſſels wounded are very large, the Opening at the bottom of the *Thorax* can be by no means adviſeable whilſt the Hæmorrhage continues, ſince it will be a Drain for a dangerous Effuſion of Blood, which perhaps would otherwiſe be choak'd up and ſtopp'd for want of a ready Iſſue.

I KNOW there are ſome Surgeons who admit of this Reaſoning, yet ſtill judge it neceſſary to perform the Operation when the Hæmorrhage is ſtopp'd: But ſince in Wounds of the Lungs, we ſee the Blood not only for the moſt part finds ſome vent by the external Wound,

Wound, if left open, but is conſtantly ſpit up by the *Trachea*, had we no farther Proofs of this abſorbent Power in the Lungs, we might from hence be perſuaded of the probability of its being more ſafely carried off ſo, than by any artificial Opening we can poſſibly contrive in the *Thorax*.

OR if it be thought that the extravaſated Blood, being coagulated in the *Thorax*, cannot be taken up by the Veſſels of the Lungs, yet even in that caſe the Operation uſually practis'd will not anſwer the purpoſe; for beſides that the Lungs frequently adhere to the *Pleura* in the place of Inciſion, which would abſolutely prevent any advantage from it, the depth and narrowneſs of the Orifice, and its height above the Diaphragm, on which the congeal'd Blood is ſuppos'd to lie, will make the Succeſs at beſt very precarious.

IF then the attempt to diſcharge the Blood by this Operation be not eligible, when we know of its Extravaſation, it will be ſtill leſs ſo in caſes that are doubtful, nor will the uſe of Tents and Injections for that purpoſe be adviſeable.

THE Rules laid down in ſome Books for diſtinguiſhing if a Wound penetrates, have led Practitioners into miſchievous Methods, by

by adviſing them to examine theſe Wounds with the Probe, or for more certainty the Finger, which if rudely us'd, ſometimes even tear into the *Thorax*, always force or preſs the Parts too much, and often ſeparate the Lungs from the *Pleura*, when they happen to adhere; all which Violences will produce Abſceſſes there, eſpecially if aſſiſted afterwards by Tents or Injections.

To empty the *Thorax* in a Rupture of any Veſſels which open into it, bleeding is very neceſſary, which not only ſtops the Hæmorrhage by abating the force of the Circulation, but likewiſe from unloading the Veſſels of their Contents, makes them more fit to receive the extravaſated Fluid by Abſorption; gentle Evacuations, and Pectorals are alſo very ſerviceable, but above all things a Low-Diet is abſolutely neceſſary. If the Intercoſtal Artery ſhould be wounded, it may be ſtopp'd by external means, but the removal of the Blood inſinuated into the Cavity, muſt even, in this caſe, be chiefly left to Nature, and the Wound in all theſe Inſtances be treated ſuperficially, without being enlarged. I am the more particular in laying down this Doctrine as it is not built on mere Theory, but has been ſurpriſingly

con-

confirm'd by Practice in a variety of Cases: And with regard to Wounds of the *Thorax* in general the difference of Event in treating them with Tents or with superficial Dressings, is so remarkable, that I think the latter Method cannot be too much inculcated.

BUT what I have here advanced concerning the Excellence of superficial Applications, without dilating the Wound, to make way for the issue of the Blood or succeeding Matter, must be consider'd with regard to Punctures or Incisions by sharp Instruments, not follow'd with a great Discharge: For where the Wound is made by Fire-Arms, the Method of Practice must be sometimes alter'd, because not only Sloughs, and great Suppurations ensue, but very often pieces of the Shirt or Coat are carried in with the Bullet, which will perhaps require an Enlargement of the Wound, in order to be freely discharged; though even upon this account there will be no occasion to make an Opening at the bottom of the *Thorax*, since the mere Dilatation of the Wound will more readily give vent to the *Pus* and extraneous Bodies, than an Orifice made lower, because the Lungs being inflamed by the Wound, will generally adhere to the *Pleura*, and break off

off the Communication between the Abſceſs and the Cavity below it. In dreſſing the dilated Wound care muſt be taken to apply the Doſſils with ſuch Preſſure only as ſhall be ſufficient to keep open the external Orifice, and not crowd them into the *Thorax*, ſo as to become a Tent, and lock up that Matter which the very deſign of Dilatation is to give a diſcharge to.

IF I have ſhewn the Impropriety of the Operation for the *Empyema*, in relation to Wounds of the *Thorax*, its unfitneſs alſo in thoſe Caſes where Matter is ſuppos'd to lie looſe in the *Thorax* will as readily appear; for if we mean by it to give Iſſue to an Abſceſs of the Lungs, it will be needleſs; ſince an Abſceſs of the Lungs, when they do not adhere and ulcerate outwards through the Ribs, will almoſt always be diſcharged by the *Trachea*; which is ſo generally true, that upon opening ſeveral who have loſt a great part of their Lungs by Impoſthumation, I do not remember to have found any looſe Matter in their *Thorax*, and it is notorious that many conſumptive People die of the Diſcharge they ſpit up from their Lungs; from whence it may be inferr'd that the Operation is not, with any good Proſpect, to be undertaken on this account:

There

There poſſibly may have been ſome few Impoſthumations form'd between the *Mediaſtinum* and Lungs, which have been diſcharged into the Cavity; but here, if the Matter is in a ſmall quantity, the Lungs will take it up, and if in a large one, the Evacuation will do but little ſervice: Beſides, theſe Inſtances are but very few, and the Symptoms of an oppreſs'd Diaphragm from that Cauſe but very doubtful; ſo that I think the Operation is not adviſeable upon ſuch a preſumption. Generally ſpeaking, in any Inflammation of the *Pleura* or Lungs, an Adheſion of both enſues; in conſequence of which, Nature finds a Diſcharge outwardly, it being moſt frequent for Abſceſſes of the *Pleura* and Intercoſtal Muſcles, and not uncommon even for Abſceſſes of the Lungs to break externally. In caſe of an Adheſion, no farther Operation is requir'd than opening the Tumour when ſuppurated, with a Lancet, and if the Diſcharge is ſo great as to forbid the healing the external Ulcer, it may be kept open with a hollow Tent; by which manner of Treatment many have liv'd a long time with a running Fiſtula.

THE laſt ſort of Fluid ſaid to require Iſſue from this Operation, is Water, which however

ever very ſeldom collects in ſuch manner as to become the proper ſubject of the Operation; for if the Dropſy of the *Thorax* is complicated with an *Anaſarca*, or even *Aſcites*, it is certainly improper, and indeed it can hardly ever take place, but where the Diſtemper is ſingle, and takes its riſe from the ſame ſort of Diſorder in the Lymphaticks of the *Pleura*, as the *Hydrocele* does from thoſe of the *Tunica Vaginalis*. The Symptoms of this Dropſy are, a ſmall Cough without ſpiting, a little ſlow Fever from the diſturbance of Reſpiration, ſometimes too it is ſaid the Water by a ſudden Jirk may be heard to quaſh, and generally ſpeaking, its weight upon the *Diaphragm* and *Mediaſtinum* are ſo troubleſome as to oblige the Patient to ſtoop forward when in an erect Poſture, and to turn upon the affected ſide when he lies down; and for the ſame Reaſon, when there is Water in both Cavities of the *Thorax*, he is forced to lie on his Back.

THE manner of operating in this caſe, is to pitch upon the moſt depending Part of the *Thorax*, which ſome have ſuppos'd to be between the eighth and ninth Rib, and others between the ninth and tenth, at ſuch a diſtance from the *Vertebræ*, that the depth of

of the Fleſh may not be an Impediment to the Perforation: This diſtance is determined to be about a hand's breadth, and here with a Knife, Sciſſars, or Trocar, we are order'd to make the Perforation, but in doing it there are a great many difficulties: In fat Perſons 'tis not eaſy to count the Ribs, and the Wound will be very deep, and troubleſome to make; it is hardly poſſible to eſcape wounding the Intercoſtal Artery which runs in this place between the Ribs, or if you avoid it by cutting cloſe to one of the Ribs, a Caries of the Bone will follow from the Preſſure of the Tent employ'd afterwards: Again, the Inflammation of the Wound may poſſibly affect the Diaphragm, which is ſuppos'd almoſt contiguous to it, and this may prove of very ill conſequence; ſo that the upon the whole without any farther recital of Objections to the *Empyema* thus perform'd, it cannot appear an adviſeable Operation. But if the only advantage propos'd by this ſituation of the Wound is from its dependency, the Purpoſe of emptying the Water will be as well anſwer'd by an Opening between the ſixth and ſeventh Rib, half way from the *Sternum* towards the Spine, which by laying our ſelves down becomes in effect as depending an Ori-

fice, as the other in ſitting up, and by opening in this manner we avoid all the Inconveniencies in the other Method: For in this part of the *Thorax* there is very little depth of Muſcles, the Artery lies concealed under the Rib, and the Diaphragm is at a great diſtance; ſo that none of thoſe Miſchiefs can enſue I have ſuppos'd in the other Method, which conſequently will give it the Preference. If it ſhould be objected that the Water cannot be diſcharged by this Orifice, while we are erect, whereas by making it in the lower part of the *Thorax* it will be continually draining; I think it may be anſwer'd that after it is once emptied, it will hardly in twelve Hours be ſeparated in greater quantity than what will lie upon the Diaphragm below the Opening made even by that Operation, and conſequently cannot be more readily diſcharged by one Orifice than the other. The Treatment of the Wound will be according to the Nature of the Diſcharge, if after the firſt day or two, there appears no Drain you may let the Orifice heal up, but if it continues, it may be kept open with a ſhort hollow leaden Tent, as in the purulent Evacuations, 'till ſuch time as an Alteration in that Circumſtance will give us leave to cicatrize with ſafety.

CHAP.

CHAP. XXV.

Of Encyſted TUMOURS.

THESE Tumours borrow their Names from a Cyſt or Bag in which they are contained, and are farther diſtinguiſhed by the Nature of their Contents: If the Matter forming them reſembles Milk-Curds, the Tumour is call'd *Atheroma*; if it be like Honey, *Meliceris*, and if compos'd of Fat, or a ſuety Subſtance, *Steatoma*. The two firſt are not readily diſtinguiſh'd from one another, but their difference from the *Steatoma* is eaſily learnt by their Softneſs and Fluctuation. Theſe Tumours appear in every part of the Body, and in places where there are no Glands, which, with the circumſtance of their Compoſition continuing always the ſame from their firſt Formation, agrees but little with an Opinion ſome of the Moderns are ſo fond of, that this kind of Swelling is an obſtructed Gland, whoſe Membrane forms the Cyſt, and whoſe Fluids, when they burſt out of their Veſſels after a long Obſtruction, make the Matter contained.

THE *Steatoma* is never painful, 'till by its weight it grows troubleſome, nor is it a mark of general Indiſpoſition of Body; ſo that the Extirpation ſeldom fails of ſucceſs. The ſize of ſome of them is very large, frequently weighing five or ſix pounds, and there have been Inſtances of their weighing above forty.

WHEN the *Steatoma* is irregular in its Surface, with Eminencies and Depreſſions, it is ſuety; whereas the fat one is for the moſt part of a uniform, ſmooth outſide. The Operation for the *Steatoma* will be underſtood by the deſcription of that for the Schirrus.

THE *Atheroma* is much more common than the *Meliceris*, at leaſt if all Encyſted Tumours with Matter not curdled may in Compliance with Cuſtom, be call'd ſo: Theſe are more frequent, and grow larger than thoſe where the Matter is curdled, being often attendant on ſcrophulous Indiſpoſitions, which makes them more difficult in the Cure.

THE Cyſts of theſe Tumours, with the Skin covering them, after a certain period of growth reſiſting any further Inlargement, do frequently inflame and break; but this Opening is not ſo advantageous for the Cure as Extirpation with the Knife, which ſhould be done in the Infancy of the Swelling. When the

Tumours

Tumours are no bigger than a ſmall golden Pippin they may be diſſected away from under the Skin, by making a ſtrait Inciſion only through it, but if they exceed this Bulk, an oval piece of Skin muſt be cut through firſt, to make room for the management of the Knife and taking away the Tumour. In cutting, it happens very often that an Operator unwarily wounds the Cyſt, and empties it; in which Caſe he muſt afterwards, by the help of a Hook, diſſect as much of it away as he can conveniently, which is a leſs painful, and more ſecure Method than deſtroying it afterwards with Eſcharoticks: This Rule is to be obſerved when the Cyſt runs ſo deep amongſt the Interſtices of the Muſcles as to make it impoſſible to remove the whole of it, where if we cut off a great quantity, the reſt uſually comes away in Sloughs and Matter. I once open'd a remarkable *Atheroma* of this kind; it was about as big as the Crown of a Man's Hat, and lay underneath the Pectoral Muſcle, extending itſelf towards the Arm-pit, amongſt the great Veſſels, and preſſing againſt the Clavicle: I cut away a large circular piece of the Skin, Pectoral Muſcle, and Cyſt, but did not dare to touch the lower part of it, which I could not remove without laying the Ribs bare;

however, it ſeparated in the digeſtion of the Wound, which for ſome time diſcharged exceſſively, and the whole Cavity fill'd up, leaving him the uſe of his Arm almoſt perfect: After this, two or three ſmall Splinters of the Clavicle work'd away through the Skin, but without any great Inconvenience.

THE Ganglion of the Tendon is an encyſted Tumour of the *Meliceris* kind, but its Fluid is generally like the white of an Egg; when it is ſmall it ſometimes diſperſes of itſelf; Preſſure and ſudden Blows do alſo remove it, but for the moſt part it continues, unleſs it be extirpated.

THE Dreſſing in theſe Caſes does not at all differ from the general Methods of treating Wounds.

CHAP. XXVI.

Of the Amputation of the Cancer'd and Schirrous BREAST.

THE Succeſs of this Operation is exceeding precarious, from the great Diſpoſition there is in the Conſtitution after an Amputation, to form a new cancer in the Wound, or ſome other Part

Part of the Body. When a Schirrus has admitted of a long delay before the Operation, the Patient ſeems to have a better proſpect of Cure without danger of a Rélapſe, than when it has increaſed very faſt, and with acute Pain. I cannot however be quite poſitive in this Judgment, but upon looking round amongſt thoſe I know who have recovered, find the Obſervation ſo far well grounded. There are ſome Surgeons ſo diſheartned by the ill ſucceſs of this Operation, that they decry it in every Caſe, and even recommend certain Death to their Patients, rather than a Trial, upon the ſuppoſition it never relieves; but the Inſtances where Life and Health have been preſerved by it, are ſufficiently numerous to warrant the Recommendation of it.

THE Schirrus may be diſtinguiſhed by its want of Inflammation in the Skin, its ſmoothneſs and ſlipperineſs deep in the Breaſt, and generally by its pricking Pain, which as it is more or leſs, increaſes the danger accordingly, though there are ſome few with little or none in the beginning: As the Tumour degenerates into a Cancer, which is the worſt degree of Schirrus, it becomes unequal and livid, and the Veſſels growing varicous, at laſt ulcerates.

IN extirpating the Schirrus, if it be ſmall, a longitudinal Inciſion will dilate ſufficiently for the Operation, but if too large to be diſſected out in that manner, an oval Piece of Skin muſt be cut through firſt, the ſize of which is to be proportioned to that of the Tumour; for example, if the ſwelling is five Inches long, and three broad, the oval Piece of Skin cut away muſt be nearly of the ſame length, and about an Inch and a half in breadth. In taking off the whole Breaſt the Skin may be very much preſerved, by making the Wound of it a great deal leſs than the Baſis of the Breaſt, which muſt be carefully clear'd away from the Pectoral Muſcle: This is not difficult to do, becauſe all theſe Schirrus's being enlarged Glands, are encompaſſed with their proper Membranes, which make them quite diſtinct from the neighbouring Parts, and eaſily ſeparable; at leaſt this is the caſe when the Tumour is moveable, for ſometimes it adheres to the ſubjacent Muſcle, and that Muſcle to the Ribs; in which circumſtance the Operation is impracticable. When it is attended with Knots in the Arm-pit, no ſervice can be done by Amputation unleſs the Knots be taken away, for there is no ſort of dependance to be laid on their ſubſiding by the

the discharge of the Wound of the Breast: The possibility of extirpating these Knots, without wounding the great Vessels, is very much question'd by Surgeons; but I have done it when they have not laid backwards and deep.

THE Bleeding of the large Arteries is to be stopp'd by passing the Needle twice through the Flesh, almost round every Vessel, and tying upon it, which will necessarily include it in the Ligature. In order to discover the Orifices of the Vessels, the Wound must be clean'd with a Spunge wrung out of warm Water.

THE Schirrous Tumours that appear about the lower Jaw are, generally speaking, scrophulous Disorders, that distinguish themselves almost by the circumstance of fixing on the Salivary Glands. These are very stubborn of cure, but not so bad as the Schirrus, since they frequently suppurate, and heal afterwards: If they imposthumate again after healing, 'tis for want of a good bottom, which may sometimes be procur'd by destroying their bad Surface with a Caustick, and is a Method I have often practis'd with extraordinary Success. Besides these, there is another Species of Schirrus in the Neck, that succeeds better after Extir-

Extirpation than either of the former kinds; this is an enlargement of the Lymphatick Glands, that run close up by the Jugular Vein, and is distinguishable from Cancers of this part, by its Moveableness, want of Pain, the Laxness of the Skin covering it, the small degree of Pressure it makes on the *Æsophagus* and *Trachea*, and lastly the good habit of Body, as it seldom affects the Constitution, which, Cancers here do very early after their first appearance. This Tumour, from its situation, requires great Exactness in the cutting off; the last I took away of this kind, I separated from the Jugular Vein near the length of an inch and a half: they sometimes extend up to the Chin towards the Mouth, and occasion a Division of the Salivary Duct in operating, which proves very troublesome to heal, but when all other Methods have fail'd, may be cur'd by a Perforation into the Mouth, through that part of the Cheek where it is wounded, which by a Tent or small Seton may be made Fistulous, then by dressing upon the outside, the Ouzing of the *Saliva* that way will be prevented, and the external Orifice healed without difficulty.

THE Treatment of all these Wounds may be with dry Lint first, and afterwards as in the common incised Wounds.

CHAP.

CHAP. XXVII.

Of the Operation *of the* TREPAN.

THE Operation of the *Trepan* is the making one or more Orifices through the Scull, to admit an Inſtrument for raiſing any pieces of Bone that by Violence are beat inwards upon the Brain, or to give iſſue to Blood or Matter lodged in any part within the *Cranium*.

FRACTURES of the Scull are at all times very dangerous, not in conſequence of the Injury done to the *Cranium* itſelf, but as the Brain becomes affected either from the Preſſure of the fractur'd Bone, or that of the extravaſated Blood and Matter. If then the Symptoms excited by a Fracture do ſometimes follow from a mere Extravaſation of Blood, as is the Caſe when the *Cranium* is not beat inwards, it muſt likewiſe happen that a Rupture of the Veſſels of this part, without a Fracture, will alſo occaſion the ſame Diſorders: For this reaſon the Operation may take place where the Scull is not much offended, but only the Veſſels of the *Dura Mater* and *Pia Mater*.

THE

THE Writers on this Operation have deſcribed the different Diſorders in which it is uſeful, under a great variety of names; but thoſe few general ones that all Surgeons are acquainted with, are quite ſufficient for the underſtanding the nature of every Caſe that can happen.

WHEN the *Cranium* is beat inward without any Fracture, it is call'd a Depreſſion; when very much broke, a Fracture; or if broke and beat in alſo, a Fracture with Depreſſion; if it is only crack'd, without Depreſſion, though properly a Fracture, it is call'd a Fiſſure; if none of theſe Diſorders appear, where there is a ſuſpicion of them, the Symptoms are imputed to a Concuſſion of the Brain. Theſe are the four Diſtinctions in uſe, and which fully comprehend all the others.

THE Depreſſion of the *Cranium* without a Fracture, can but ſeldom occur, and then it happens to Children whoſe Bones are more pliable and ſoft than thoſe of Adults: I have met with one inſtance of this myſelf in a Girl of ſeven Years of age; when ſhe firſt receiv'd the Injury, ſhe had the complaints of an oppreſs'd Brain, but they ſoon went off; the Blow form'd a large Tumour on the Parietal Bone, for which ſhe was put under my Care

ſome

ſome days after the Accident; I open'd immediately into it, by cutting away a circular piece of the Scalp, and took out a great quantity of grumous Blood lying underneath the *Perioſteum*; I then dreſs'd the Depreſſion with dry Lint, and finding no Complaints come on, continued the ſame Method, 'till in about ſix weeks ſhe was perfectly cur'd.

IN Blows of the *Cranium* requiring the uſe of the Trepan, the Marks of a Fracture are generally very evident, ſince the Scalp is often lacerated ſo much as to expoſe it to our ſight: But if the Wound of the Scalp be ſo ſmall as only to admit a Probe, we muſt judge then by the Feel of the Surface of the Bone, uſing the Caution of not miſtaking a Suture for a Fracture, which *Hippocrates* confeſſes he himſelf did; though for this frank Confeſſion of an error, to prevent others being miſled, he is as much recommended to Poſterity, as for any of his other qualities.

IF there be no Wound of the Scalp, you muſt preſs about the Head with your Fingers, 'till the Patient complains of ſome particular Part, which in all likelihood is the place affected, and if the Scalp there be ſeparated from the *Cranium*, is almoſt infallibly ſo: The Symptoms of a Fracture are, a bleeding at the Ears

Ears and Noſe, a loſs of Senſe, Vomitings, Drowſineſs, Delirium, Incontinence of Urine, and Excrement; but what is moſt to be depended upon is a Depreſſion of the Bone, or a Roughneſs on its Outſide; for all the other Complaints not only happen to Concuſſions, which recover without the Application of a Trepan, but likewiſe there are Fractures not attended with any of them, or at leaſt in a ſlight degree; ſo that theſe Symptoms alone without examination of the part affected, are but an uncertain Rule to go by.

IN Concuſſions without a Fracture, that produce the Symptoms here laid down, and do well afterwards, the Veſſels of the Brain and Membranes are only inflam'd and dilated; or if they are ruptur'd, they abſorb the extravaſated Blood again; on which account Nature ſhould be aſſiſted by plentiful Bleedings, Clyſters, and other Evacuations, and ſo in all Fractures where the Patient is not trepan'd immediately; however, although People with Concuſſions in the violent degree I have ſtated do ſometimes recover, it is ſo very ſeldom, that there can be no pretence, when they happen, for neglecting the Trepan, but not being able to learn in what Part the Concuſſion is. The opportunities I have had of opening ſome People who

who have died under this Circumſtance, have ſufficiently convinc'd me how little is to be truſted to any other Method than an Opening for the diſcharge of the Abſceſs, which by confinement of the Matter becomes very large, ſpreading over a great quantity of the Brain before it kills.

WRITERS diſpute very much about the poſſibility of the *Contra-Fiſſure*, or a Fiſſure occaſion'd on a part of the Head oppoſite to that on which the Blow is given, or where the inner Table is fractur'd, while the outer one remains intire; but there are Hiſtories of Caſes, which if fairly ſtated, make it unqueſtionable; and this is moſt certain, that if the Complaint be at a diſtance from where the Blow was receiv'd, there can be no danger in ſcalping, and applying the Trepan to that part where the Pain is.

THERE are Surgeons who ſay that the Veſſels of the *Diploe* do ſometimes by a Concuſſion break, and that the Matter making its way through the inner Table of the Scull into the Brain, requires the Trepan; but I believe there is no very good authority for this Aſſertion.

WHEN we are aſſur'd of a Fracture or Depreſſion, though the Symptoms in a great meaſure

ſure go off, it is yet adviſeable to trepan as ſoon as poſſible, to prevent the ſpreading of the Abſceſs, which ſeldom fails to follow upon the Rupture of the Veſſels of the Brain and Membranes, and for the moſt part in a few days, though there are a great many inſtances of Fractures not bringing on a fatal Abſceſs for a great length of time after the Accident.

I ONCE trepan'd a young Woman about a hundred days after ſhe receiv'd the Blow; the lower part of the Parietal, and upper part of the Temporal Bones, were fractured and depreſſed; ſhe had bled at the Noſe and Ears when ſhe firſt received the injury, and had at times been drowſy, and in ſome little Pain, 'till towards the ninetieth day, when the Symptoms of a compreſs'd Brain came on ſtronger, and a ſmall time after ſhe put her ſelf under my care; which, with the many inſtances of the ſame kind to be met with in Authors, ſhew how little ſafe it is to truſt to any Extravſation or Depreſſion on the Brain doing well without the aſſiſtance of the Trepan.

THE manner of treating a Fracture of the *Cranium*, will be according to the nature of the Fracture itſelf, and the Injury of the Scalp; if the Wound of the Head be tore into Angles, perhaps cutting off the lacerated Flaps will

make

make room for the Saw; if the Bone be broke into ſeveral pieces, the pieces may be taken away with the Forceps; or if ſome of the Scull be alſo depreſs'd, the removal of the pieces will, without perforating, make way for the Elevator to raiſe the depreſs'd part; but if the Fracture be not complicated with a Wound of the Scalp, or the Wound is too ſmall to admit of the Operation, which ſeldom fails to be the caſe, then the Fracture muſt be laid bare, by taking away a large piece of the Scalp. It is a faſhion with ſome Surgeons to make a crucial Inciſion for this purpoſe, which they prefer to the other Method, upon the ſuppoſition that the Wound will more eaſily heal again after the Operation, by turning down the Flaps, and in caſe we find no Fracture, which ſometimes happens after ſcalping, that by making this Species of Wound, an Exfoliation of the Bone, and tedioufneſs of Cure will be avoided. But whoever has ſeen the practice of the crucial Inciſion, muſt be ſenſible of the falſe Reaſoning us'd in its favour; for it ſeldom or never happens that we inquire for a Fracture of the Scull by ſcalping, but that the Scalp itſelf is contus'd, which circumſtance bringing on a plentiful Suppuration, and the Matter lodging between the *Cranium* and Skin, not only pre-

vent their immediate healing, but generally occaſion a Caries of the Bone, which is the Accident meant to be ſhunn'd by it, and frequently at laſt the Lips of the Wound growing callous, require cutting off to procure a Cicatrix. If then the Objection be good to the crucial Inciſion when no Operation is perform'd, it becomes of ſo much more force when we are aſſur'd of uſing the Trepan, that I think it is indiſputably right at all times to take off the Scalp, when we lay bare the *Cranium* with a view to the Operation, which ſeldom fails to granulate with Fleſh in a few days, if dreſs'd only with dry Lint, and rarely grows carious, if not affected by a great diſcharge of Matter from the Brain; or if after it is thus expos'd, new Fleſh ſhould not generate upon its Surface, the growth of it may be quickened by boring little Orifices into the Subſtance of the Bone, or raſping it with the Rugine. The form of the piece taken away may be nearly circular, and to be better aſſur'd of the courſe of the Fracture, it will be proper it ſhould be of the whole length of it. I believe there are few will care to expoſe ſo much naked Scull, but whoever knows the great advantage and the little danger of it, will not heſitate. When the Scalp is remov'd, the *Perioſteum* muſt be raiſed,

raiſed, and the Arteries immediately tied, which will make way for the Operation to be directly perform'd; though the Effuſion of Blood has been eſteem'd ſo troubleſome in this part, as to have made it almoſt an univerſal Practice to poſtpone the uſe of the Trepan to the day after; but the apprehenſion is without foundation, for if two or three of the larger Veſſels are tied, the others may eaſily be ſtopp'd with a little dry Lint, and the Operation take place without any inconvenience, which I have always done myſelf, and would recommend to others, conſidering how urgent the nature of the Diſtemper is, and that leſs than twenty-four hours is often the difference between Life and Death, when the Brain is much preſs'd by a fractur'd Bone.

BEFORE the Application of the Trepan, it is to be remembred there are certain places on the Scull where it cannot be uſed with ſo much ſafety as on others; the whole length of the Sagittal Suture, down to the Noſe, is always mention'd as one where the Perforation is dangerous, becauſe of the Spine of the *Os Frontis*, and the courſe of the ſuperior longitudinal *Sinus* under this part, which it is ſuppos'd would be neceſſarily wounded by the Saw, and in conſequence deſtroy the Patient by the

Hæmorrhage; but though a Perforation may, contrary to the general opinion, be made over the *Sinus* without offending it, and even if it was wounded, the effuſion of Blood would not in all probability be mortal, as I have ſeen in two inſtances: Yet at beſt it would be very troubleſome, and ſince we are not ſtraitned in that part of the *Cranium* for room, I think it is adviſeable to forbear operating in that place. The bony *Sinus*'s of the *Os Frontis* forbid the uſe of the Trepan near the Orbits of the Eyes, therefore if it ſhould be depreſs'd near thoſe Cavities, the Surgeon muſt be careful to perforate either above, or on one ſide of the Fracture, for ſawing below it will only lead into the *Sinus*, and anſwer no purpoſe in the deſign either of giving a Diſcharge to the Matter from the Brain, or an opportunity to elevate the Depreſſion; nay perhaps leave an incurable Fiſtula, if the Patient eſcapes with Life.

THE *Os Occipitis* being very uneven, both in its internal and external Surface, makes trepanning there almoſt impracticable; beſides the great *Sinus*'s run about ſo much of it, as hardly to afford ſpace to perforate without danger of wounding them; but then it is ſo defended from Injuries by its ſituation, and fortify'd

fortify'd againſt them by its Strength, that Fractures do not happen to it ſo often as to the other Bones of the *Cranium*; and when they do, for the moſt part they become ſo ſoon mortal by affecting the *Cerebellum* which it ſuſtains, that the Operation is ſeldom required in this caſe. Indeed the upper Angle of this Bone lies above the *Cerebellum*, and when fractur'd or depreſs'd, is not attended with ſo immediate danger, but when this happens, the courſe of the longitudinal *Sinus* down through the middle of it, and the neighbourhood of the lateral *Sinus*'s beneath it, make it adviſeable to trepan at the lower part of the *Os Parietale*, ſo that the Perforation of the *Os Occipitis* can hardly ever be proper.

IT may be obſerved I have ſpoke of Wounds of the *Cerebellum* as proving inevitably mortal, when affected by a Fracture: How long a Patient may continue with Matter on its Surface, I cannot take upon me to ſay, but I believe there is no inſtance of a Cure after an Abſceſs, and as for Wounds of it, they are almoſt inſtantaneous Death. From this great difference of Danger in Affections of the *Cerebrum* and *Cerebellum*, has aroſe the opinion that the firſt is the Organ of Animal Motion only, and the other of Vital.

THE Places then unfit to admit the Saw are the three I have deſcribed, that is, the Sagittal Suture, the *Os Frontis* near the Orbits of the Eyes, and the *Os Occipitis*. But when a Fracture happens in any other part above the ear, there is no Objection to the Operation. When there is only a ſmall Fiſſure, without any Depreſſion or Motion in the Bone, the Trepan may be applied on the Fiſſure itſelf, which will more readily give vent to the Blood or Matter underneath, than if made at a diſtance. If the Fiſſure be large, and the Bone weaken'd or depreſs'd, the Trepan muſt be apply'd on one ſide of it, but ſo as to make it a part of the Circumference of the ſaw'd Piece; if the Fracture runs upwards, it will be eligible always to perforate near its bottom, becauſe the dependency of the Orifice will give better Iſſue to the Matter, though the ill-grounded Apprehenſion of the Brain falling out there, has made many eminent Surgeons contradict this Rule in their Practice. If by making one Orifice you cannot raiſe all the depreſs'd part, you muſt make a ſecond and a third, and continue doing ſo 'till you have reduc'd the whole *Cranium* even; there is frequently occaſion to repeat it twice or thrice, and it once was done a dozen times with Succeſs, which I mention

to

to ſhew the little danger there is either in ſawing the Scull, or expoſing the *Dura Mater* and Brain, when the Preſſure is taken off. Indeed the miſchief of laying the Brain bare is ſo ſmall, compar'd with a Concuſſion of it, or an Abſceſs from pent-up Matter, that thoſe Fractures of the Scull, where the Bone is broke into Splinters the whole extent of it, and can be taken away, much more readily do well than a ſimple Fiſſure only, where the Abſceſs cannot diſcharge it ſelf freely, for which reaſon though the depreſs'd Fracture may be rais'd by the means of one Orifice, yet if it is of a conſiderable length, it will be almoſt abſolutely neceſſary to make one or two more Openings for the convenience of Diſcharge, ſince for want of this we ſee Abſceſſes increaſe daily in their quantity of Matter, and at the end of a few weeks carry off the Patient. Thoſe that are converſant in the Diſſection of Perſons dying of this Diſorder will be convinc'd of the force of this Reaſoning, ſince they not only conſtantly find *Pus* lodged on the Brain, as far as the Fiſſure extends, but all round about it, ſometimes ſpreading over a quarter of its Surface.

IN Concuſſions of the Brain, without a Fracture of the *Cranium*, if the Trepan be ap-

ply'd, and vaſt Diſcharges enſue, it will be alſo convenient to make more Perforations into the Abſceſs, the ſituation of which will be eaſily gueſſed by the direction of the Stream of Matter.

THE manner of Trepanning is this: Having fix'd your Patient's Head ſteady, either on the Bolſter of a Bed, or by placing him in a low Chair, with the Pin of your Saw mark the center of the piece of Bone to be taken out, then with the Perforating Trepan make an Orifice deep enough to receive the Pin, which being fixed in it, will prevent the Saw from ſlipping; and thus you are to continue ſawing 'till the Impreſſion made will preſerve the ſteadineſs without the Pin, when it is to be taken away for fear of its wounding the Brain before the Saw has entred through the *Cranium*, which it would do at laſt becauſe of its Projection. In working through the Bone, the Teeth of the Saw will begin to clog by that time you arrive to the *Diploe*, wherefore a Bruſh muſt be ready to clean it every now and then, and with a pointed Probe you muſt clear away the Duſt in the Circle of the Trepan'd Bone, obſerving if it be deeper on one ſide than the other, to lean afterwards on that ſide where the Impreſſion is leaſt, that

that the whole thickneſs may be ſaw'd thro' at the ſame time. To do all this with leſs Interruption it will be proper to have two Saws of exactly the ſame diameter, that an Aſſiſtant may be bruſhing one while you operate with the other. We are adviſ'd to ſaw boldly 'till we come to the *Diploe*, which it is ſaid will always diſtinguiſh it ſelf by the Bloodineſs, but however this is not a certain Mark to go by, for though where there is a *Diploe*, it will manifeſt it ſelf by its Bloodineſs, yet ſometimes the Scull is ſo very thin as not to admit of any; in which Caſe if an Operator ſhould puſh on his Inſtrument in expectation of meeting with this Subſtance, he would unwarily wound the Brain. This is not very often the Caſe, but however often enough to put a Man on his guard, and make him enquire whether the Bone be looſe after a little ſawing, which is the only Rule we go by when we have paſs'd through the *Diploe*, and may as well be attended to before coming at it, without any conſiderable loſs of time. When it is quite ſaw'd through and lies looſe, it may be taken away with the Forceps, contriv'd for that uſe, and if the lower edges of the Orifice next to the *Dura Mater*

Mater are ſplinter'd, they may be ſcrap'd ſmooth with a Lenticular.

THIS is the chief of the Operation of the Trepan; the only thing remaining to be done, is with an Elevator introduc'd at the Orifice to raiſe the Depreſſion, or broken Splinters if they cannot otherwiſe be laid hold of, and to draw out the grumous Blood, or any other extraneous Body. If the *Dura Mater* be not wounded or tore, an Inciſion muſt be made through it to give way to the Blood or Matter, which almoſt certainly lie underneath it, if the Symptoms have been bad, and none has been diſcharg'd from between the *Cranium* and *Dura Mater*.

I HAVE us'd the Word Trepan all along, for the ſake of being better underſtood, but the Inſtrument I recommend is a Trephine, the Advantages of which, as alſo that of a Cylindrical Saw, are deſcribed in the Explanation of the Copper-Plate.

WITH regard to the Dreſſings of theſe Wounds, I think it is very certain that as the greateſt part of the Evil proceeds from the quantity and preſſure of the Matter, whatever approaches towards the Nature of a Tent, and increaſes its quantity and preſſure by locking it

it up, muſt be pernicious: Therefore I would exclude the uſe of all Syndons whatever, the haſty Application too of Spirits of Wine which is ſo commonly advis'd, cannot be proper, as they are not only unfit for Inflammations in general, but alſo criſp up the Veſſels of the *Dura Mater* and Brain, and ſtopping the Suppuration ſometimes produce a Gangrene. Since then a Cloſe Application is inconvenient, and whatever good there may be in Topical Medicines, it cannot for the moſt part be communicated to the Abſceſs, by reaſon of its extent beyond the Orifice; the beſt Remedy will be dry Lint only, which muſt be laid on looſely to give vent to the Matter, and be repeated twice a-day 'till the Diſcharge is leſſen'd, when once in twenty-four Hours will be ſufficient to the finiſhing of the Cure, which will be ſomething retarded by the Exfoliations that ſometimes follow this Operation. The Patient afterwards may wear a Plate of Tin upon the Scar to defend it from Blows, or any accidental Injury.

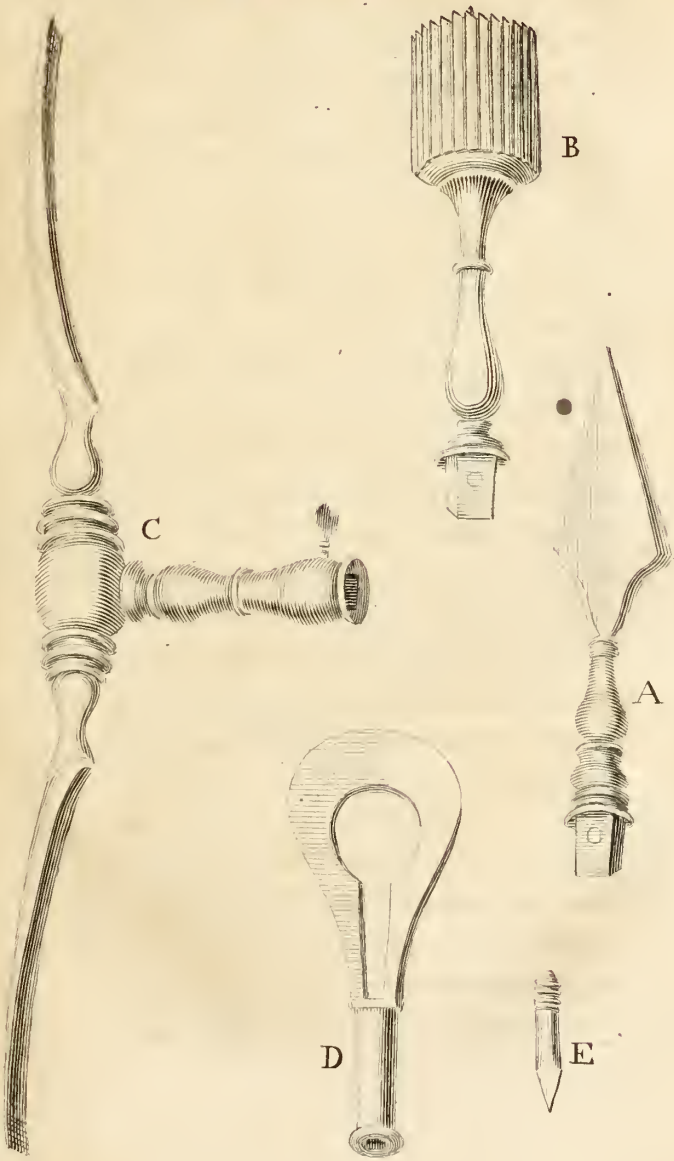
PLATE

PLATE VIII.

The EXPLANATION.

A. The Perforator, commonly call'd the Perforating Trepan. With this Inſtrument an Orifice is uſually made for the Reception of the Pin on the Center of the piece of Bone that is to be taken away, in the Operation of Trepanning; though if the Pin be very ſharp, and project but little beyond the Teeth of the Saw, as in that mark'd with the Letter *B*, the Perforator would be needleſs; but as the point of the Pin preſently grows blunt with uſe, and in that caſe prevents the Steadineſs in working the Saw, I think it adviſeable to have this Inſtrument in readineſs. Is is alſo handy for boring into the Subſtance of the Bones, in order to promote a Granulation of Fleſh on their Surfaces: When it is made uſe of, it muſt be receiv'd and faſten'd in the Handle *C.*

B. The Crown, or Saw of the Trepan, with the Pin appearing juſt beyond the Extremities of the Teeth. It may be obſerv'd the Shape of this Saw is Cylindrical, differing from thoſe in uſe, which are all Conical, and ſome in a very great degree. Surgeons have generally


B
C
A
D
E

generally conceiv'd great advantages to ariſe from this Form: Firſt, as a circumſtance of the utmoſt importance, they have imagin'd there would be danger of injuring the Brain, by ſawing too ſuddenly through the *Cranium*, if the Enlargement of the Saw did not increaſe the Obſtruction in proportion as they advanc'd towards it, and make the working of the Inſtrument exceeding ſlow. It has alſo been believ'd, that unleſs the Saw was ſmaller near the Teeth than towards its Baſis, it would be impoſſible to incline it on any part where it had not made ſo deep an Impreſſion as in others, in conſequence of which, one ſide of the Circle wou'd be ſaw'd through, and the Membranes or Brain injured, while on the other perhaps the Saw would not have penetrated through the firſt Table of the *Cranium:* The laſt remarkable Argument in favour of the Conick Saw, is, that it more readily admits, and afterwards retains the ſaw'd piece of Bone in its Cavity: But I think all the Advantages attributed to this Figure are almoſt imaginary; and the great labour of working ſo ſlowly and difficultly, is not only very inconvenient to an Operator, but by no means ſerviceable to the Operation; for notwithſtanding the Saw be Cylindrical, and works without any other

other Impediment than what lies before the Teeth, yet even with this Advantage the Operation goes on ſo gradually, that from the Experience I have had, I do not find the leaſt danger of ſuddenly paſſing through to the Brain as is apprehended, if we proceed with the Caution of not leaning too hard on the Inſtrument when the Bone is almoſt ſaw'd through; and with reſpect to the Impracticableneſs of inclining it on any particular part of the Circle when ſaw'd uneven, which is commonly alledged, whoever will try the Experiment, will in a Moment diſcover the falſeneſs of the Aſſertion; beſides, the very Inſtance ſtated overthrows this reaſoning, for if the Circle has been already made deeper in one part than another, it muſt imply that we have lean'd with more force on one part than another, and conſequently may at pleaſure do the ſame thing again: As to the laſt ſuppos'd Advantage of its receiving and retaining the ſaw'd piece of Bone in its Cavity, the Benefit would be ſo frivolous, if it had truly the preference of the Cylindrical one in that reſpect, that it would not be worth mentioning, but in fact the Cylindrical Saw receives the piece of Bone very readily, and will be more likely to hold it in its Cavity than the other, becauſe there will

will be more Contact between the edges of the Bone and the Inside of the Saw.

C. THE Handle of the foregoing Instrument, call'd the Trephine, which is much preferable to the Trepan, (an Instrument like a Wimble us'd by Joiners) because of the great convenience of holding it, and leaning on one side or other of the Saw, as we find it necessary: The Trepan however, though allow'd to be unhandy, is the Instrument most us'd by Surgeons in other Parts of *Europe*, upon the supposition of its working quicker than the Trephine.

I HAVE represented the Trephine of such a Shape as to make it a convenient Elevator, for which purpose the Extremities of it are made rough.

D. A Key to take out the Pin *E*, when the Saw has made an Impression deep enough to be work'd without the help of it.

E. THE Pin.

PLATE

PLATE IX.

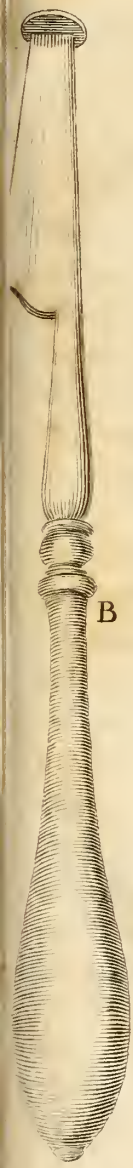
The EXPLANATION.

A. A convenient Forceps to take out the circular piece of Bone, when it does not ſtick to the Saw; the Contrivance by which they readily lay hold of it, is to make the Extremities that are to graſp it, with an Arch of the ſame Circle as the Saw is. Upon one of the Handles there is added a little Elevator to lift up any ſmall Splinter of Bone, but it is not of much uſe.

B. A Lenticular, the forepart of its Blade is ſharp, in order to ſcrape the lower edge of the Orifice of the *Cranium*, in caſe any Splinters ſhould remain after the Operation, and the Button at its Extremity receives the Duſt that it may not fall on the Brain; but there is ſeldom any occaſion for this Inſtrument, and I have never my ſelf been under the neceſſity of uſing it.

C. A Rugine, or Raſpatory, which I have recommended for ſcraping Bones, in order to promote Granulations of Fleſh. The Handles of theſe two laſt Inſtruments are Wood, whereas every part of the others ſhould be made of Steel.

CHAP.



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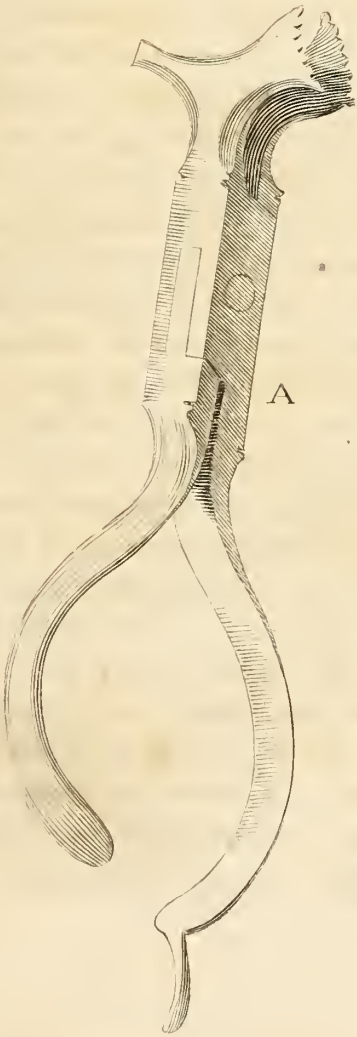

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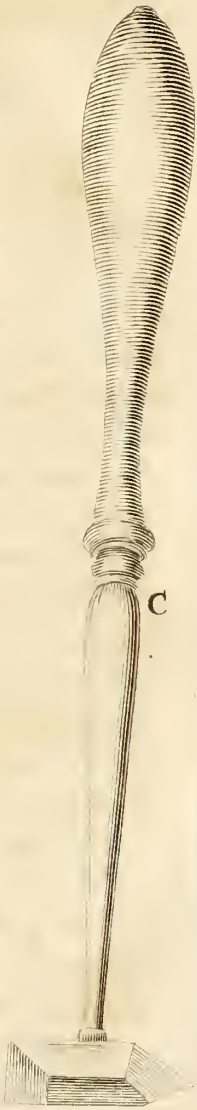

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CHAP. XXVIII.

Of the CATARACT.

THE Cataract, call'd by the *Latines*, *Suffuſio*, is a Diſeaſe of the Cryſtalline Humour, rendering the whole Body of it opake, ſo that the Rays of Light, which in the natural ſtate of its Tranſparency, were tranſmitted to the *Tunica Retina*, become now totally intercepted, and produce no effect. This is pretty nearly the Account deliver'd down to us by *Hippocrates* and the antient *Greeks*, who likewiſe knew it by the Name of *Glaucoma*. *Galen* was perhaps the firſt who ſpecified any difference in defining the Cataract to be a Film, ſituated behind the *Iris*, and the *Glaucoma* a diſorder of the Cryſtalline Humour; which Opinion, with very little Alteration, has prevailed from his time down to the latter end of the ſeventeenth Century, when there aroſe a diſpute on this Diſtinction of *Galen*'s, ſome of the Moderns aſſerting with *Hippocrates*, that the Cataract is always a Diſeaſe of the Cryſtalline Humour, and indeed with ſo much

reaſon, that there is now hardly any one who doubts it: However, for forty Years laſt paſt this Subject has produc'd many Arguments on both ſides.

THE Mathematicians having obſerved in thoſe who have been couch'd, that the defect of Sight remaining after the Operation, anſwers nearly to what in Optics the removing the Cryſtalline Humour would occaſion, have endeavoured to prove that the Operation muſt in conſequence be, the depreſſing that Humour, and leaving the Eye to perform its Function afterwards with the Aqueous and Vitreous only; which wanting the Denſity of that Humour, will not refract the Rays ſufficiently to re-unite them on the *Retina*; whence Patients after their Cure are obliged to uſe Convex Glaſſes, as Subſtitutes for the depreſs'd Cryſtalline Humour.

Dr. PETIT, a moſt accurate Anatomiſt of *Paris*, has from a critical Examination of the Figure of the Eye, argued againſt the poſſibility of a Film's exiſtence in the Poſterior Chamber, by reaſon of the ſmallneſs of that Chamber, or Proximity of the Cryſtalline Humour to the back of the *Iris*; and again from the Impracticability of diſlodging ſuch a Film without offending the ſound Cryſtalline Humour.

LASTLY,

LASTLY, and what is more certain, Anatomiſts have frequently diſſected the Eyes of Perſons under this Diſorder after their Death, and have found it to be always an Opacity of the Cryſtalline Humour, agreeable to the Definition of a *Glaucoma*, ſo that by conſequence we muſt underſtand the Words *Cataract* and *Glaucoma* as ſynonymous Terms, ſince they are in fact but one and the ſame Diſeaſe.

I THINK it needleſs to ſtate the Reaſons on the other ſide of the Queſtion, as they are of little weight, and indeed almoſt univerſally exploded.

IN deſcribing the nature of a Cataract, it has hitherto been a poſitive Maxim laid down by Oculiſts of every Nation, that there is one certain Stage of the Diſtemper, in which only the Operation is proper, and this ſtate of the Diſeaſe is ſaid to be the Maturity of the Cataract: They have compar'd it to the ripeneſs of Fruits, and have ſuppos'd a regular Change in the conſiſtence of the Cryſtalline Humour from the moment it is affected. They ſay the Diſeaſe upon its firſt Invaſion gradually liquefies the Humour, and that after its Arrival to the utmoſt period of Liquefaction,

it then begins to acquire various degrees of Tenacity, 'till at laſt it becomes perfectly hard, or as they ſtile it, horny: That the Skill of the Surgeon diſcovers itſelf by fixing on that time for the Operation, in which the Fluidity of the Cataract is no obſtacle to the Depreſſion of it, from its want of reſiſtance to the Needle; nor its hardneſs, from the Elaſticity of its connecting Fibres, which not being thoroughly broke, immediately return it to its former poſition.

THIS, in a few Words, is the general Doctrine; but I think the regular Alteration of the Denſity of the Cryſtalline Humour is very much to be doubted, and for my part I cannot help poſitively excepting to the Rule here laid down; having not only ſeen Cataracts of twenty or thirty Years growth, often upon the Touch of the Needle prove ſoft and milky, but alſo many Inſtances, in which a due degree of Conſiſtence occurr'd after four or five Months, I may venture to ſay Days, when the Cataract was the conſequence of a Blow or Puncture; both which Caſes ſo little correſpond with this ſuppos'd Change, that they ſeem not only to overthrow it, but to imply, that the Cataract, after it has acquir'd its total degree of Opacity, may frequently,

if

if not generally continue in the ſame ſtate of Tenacity to the Life's end: And tho' I will not take upon me to affirm that Cataracts come always very early to their greateſt Conſiſtence, yet this we may ſafely deduce from theſe Obſervations; that whenever they become entirely opake, we may properly undertake the Operation; which has been my Method of Practice hitherto, nor do I find any reaſon to lay it aſide.

SINCE then the *Glaucoma* is no other Diſeaſe than the Cataract, we muſt at once diſcard the diſtinction of theſe two Diſtempers as merely imaginary; and from what has been ſaid with regard to the Conſiſtence of a Cataract, that whatever it be, the removal of the Humour is the ſole end of the Operation, the diſtinction of a true and falſe Cataract will appear equally frivolous; and conſequently moſt of the Subdiviſions compriſed under this laſt, ſuch as the Bag, the Milky, the Purulent, the Doubtful, the Membranous, the Fibrous, the Shaking, and many more in the Books on this Diſeaſe; the greateſt part of which are Names that puzzle the Memory without informing the Underſtanding; and indeed have not a ſufficient foundation in Nature, but owe their diverſity of Character

more to the Imagination of Writers than any real Variety in the Diſeaſe.

THE general Criterion of the fitneſs of Cataracts for the Operation is taken from their Colour; the Pearl-colour'd, and thoſe of the Colour of burniſh'd Iron, are eſteem'd proper to endure the Needle; the White are ſuppos'd milky, the Green and Yellow horny and incurable: The Black Cataract is deſcrib'd by moſt Authors, but I dare ſay, has been miſtaken for a *Gutta Serena*, where no Diſeaſe appearing, the Pupil ſeems black as in a natural ſtate of the Eye: And as to the Green one I have not as I remember, in a great number of Cataracts, met with a ſingle Inſtance of it, but poſſibly it may be in Nature, and one would indeed imagine the Deſcribers of it could not be miſtaken in what muſt have been ſo evident.

THE Depreſſion of a Cataract of any Colour would be the Cure, if that alone was the Diſtemper of the Eye, but it generally happens that the Yellow ones adhere to the *Iris* ſo firm as to become immoveable; beſides, when they follow in conſequence of a Blow, which is often the caſe, either the Cells of the Vitreous Humour are ſo much diſturb'd and broken, or the *Retina* affected, that

that a great degree of Blindneſs will remain though the Cataract be depreſs'd, and that one Cauſe remov'd.

To judge whether the Cataract adheres to the *Iris*, if you cannot at once diſtinguiſh it by your Sight, ſhut the Patient's Eye, and rub the Lids a little; then ſuddenly opening it, you will perceive the Pupil contract, if the Cryſtalline Humour does not prevent the Action by its Adheſion: And when this is the caſe in any kind of Cataract, the Operation can hardly be advis'd, though I once did it with ſucceſs on a Perſon who had been blind thirty Years. It is the only Trial I ever made on a Cataract I knew to be adherent, and I ſhould not have been tempted then, but that it look'd very firm, and I thought the Adheſion ſlight, as in fact it prov'd.

ANOTHER Conſideration of the greateſt moment, before undertaking the Cure, is to be aſſur'd of the right ſtate of the *Tunica Retina*, which is very readily learnt, where there is no Adheſion of the Cataract, from the Light falling between the *Iris* and Cryſtalline Humour, which if the Eye is not ſenſible of, it is a certain Indication of another Malady, and abſolutely forbids the Operation. Generally this Cataract takes it riſe from

Head-achs, Convulſions, and nervous Diſorders. How the Eye perceives in this caſe, *vide* the Copper-plate.

THE Operation of the milky Cataract has been by ſome Writers falſly ſaid never to ſucceed. Of this there are two ſorts; ſome, which are almoſt uniformly ſoft, and admit the Needle through them as through Water, conſequently are immoveable; and others where the Humour is liquefied, and contained in its own Membrane, now pretty much thickened by the Diſeaſe, which laſt frequently does well; for upon breaking the Membrane, the Fluid burſts out and precipitates, and the Membrane itſelf, if it is not depreſs'd, in proceſs of time ſhrinks into a ſmall compaſs, or waſtes quite away.

WHETHER the whole Cataract after its ſubſiding continues to lie at the bottom of the Eye, or is quite waſted by being ſeparated from its Veſſels, I have never had an opportunity of knowing poſitively by diſſecting one that had been couch'd; but by what we ſee of thoſe that have not been totally depreſs'd below the Pupil, and continue in that ſtate for ever after, we may ſuppoſe that they only waſte a little: I know one Inſtance of a Woman whoſe Cataract after couching became quite

quite looſe in the Eye, and in an erect poſture ſunk to the bottom, but by ſtooping the Head forward ſhe could bring it quite over the Pupil.

WHEN none of the Objections I have ſtated forbid the Operation, it may be thus done: Having plac'd your Patient in a convenient Light, and in a Chair ſuitable to the height of that you yourſelf ſit in, let a Pillow or two be placed behind his Back, in ſuch a manner that the Body bending forward, the Head may approach near to you; then inclining the Head a little backward upon the Breaſt of your Aſſiſtant, and covering the other Eye ſo as to prevent its rolling, let the Aſſiſtant lift up the ſuperior Eyelid, and yourſelf depreſs a little the inferior one: This done, ſtrike the Needle through the *Tunica Conjunctiva*, ſomething leſs than one tenth of an inch from the *Cornea*, even with the middle of the Pupil, into the poſterior Chamber, and gently endeavour to depreſs the Cataract with the flat Surface of it. If after it is diſlodg'd it riſes again, though not with much elaſticity, it muſt again and again be puſh'd down; if it is membranous, after the diſcharge of the Fluid, the Pellicule muſt be more broke and depreſs'd; if it is uniformly fluid, or exceeding elaſtick, we muſt not continue to endanger

ger a terrible Inflammation by a vain attempt to ſucceed. If a Cataract of the right Eye is to be couch'd, and the Surgeon cannot uſe his left hand ſo dextrouſly as his right, he may place himſelf behind the Patient, and uſe his right hand.

I HAVE not recommended the *Speculum Oculi*, (which we can't however well do without, unleſs the Patient reſolutely determines to hold the Eye ſtill) becauſe upon the diſcharge of the Aqueous Humour through the Puncture, the Eye being ſomewhat emptied, more readily admits of the Depreſſion of the Cryſtalline Humour than when preſs'd upon by the Inſtrument.

AS to the Method of treating the ſucceeding Inflammation (when it happens, for ſometimes there is none) I can adviſe nothing particular but to refrain from thoſe *Collyria* that are charged with Powders; for the thinner parts flying off, leave a gritty ſubſtance in the Eye, which muſt be pernicious: Bleeding, and other gentle Evacuations are found abſolutely neceſſary. The uſe of cool Applications externally, is moſt eaſy to the Eye; but after all, there will ſometimes enſue a troubleſome Opthalmy, which, with the uncertainty there always is of Succeſs after the Operation, have deterr'd

deterr'd moſt Surgeons from undertaking it, and 'till lately from ſtudying the nature of the Diſeaſe; But I fancy the Operation will come into greater Repute when more generally practis'd by Men of good Character, for it is leſs the Difficulty than the Abuſe of it by Pretenders has brought it into Diſcredit.

CHAP. XXIX.

Of Cutting the IRIS.

THERE are two Caſes where this Operation may be of ſome ſervice, one when the Cataract is from its Adheſion immoveable, and the other when the Pupil of the Eye is totally clos'd up by a Diſorder of the Muſcular Fibres of the *Iris*, which gradually contracting the Orifice, at laſt leaves the Membrane quite imperforate. This laſt Diſtemper has hitherto been deemed incurable. The Adheſion of the Cataract I have ſpoke of in the preceding Chapter, and conſider'd it as a Species of Blindneſs not to be relieved: But Mr. *Cheſelden* has invented a Method of making an artificial Pupil by ſlitting the *Iris* which

which may relieve in both the Inſtances here ſtated.

IN doing this Operation the Patient muſt be plac'd as for couching, and the Eye kept open and fixed by the *Speculum Oculi*, which is abſolutely neceſſary here, for the very reaſon I would diſcard it in the other, ſince the Flaccidity of the Membrane from the Iſſue of the Aqueous Humour would take away its proper reſiſtance to the Knife, and make it, inſtead of being cut through, tear from the *Ligamentum Ciliare*; then introducing the Knife in the ſame part of the *Conjunctiva* you wound in couching, inſinuate it with its Blade held horizontally, and the Back of it towards you, between the *Ligamentum Ciliare* and circumference of the *Iris*, into the anterior Chamber of the Eye, and after it is advanc'd to the farther ſide of it, make your Inciſion quite thro' the Membrane, and if the Operation ſucceeds, it will, upon wounding, fly open, and appear a large Orifice, though not ſo wide as it becomes afterwards.

THE Place to be open'd in the *Iris* will be according to the nature of the Diſeaſe, if the Membrane itſelf be only affected with a Contraction, the middle part of it, which is the natural ſituation of the Pupil, muſt be cut; but

but if there be a Cataract, the Inciſion muſt be made above or below the Cataract, though I think it more eligible to do it above.

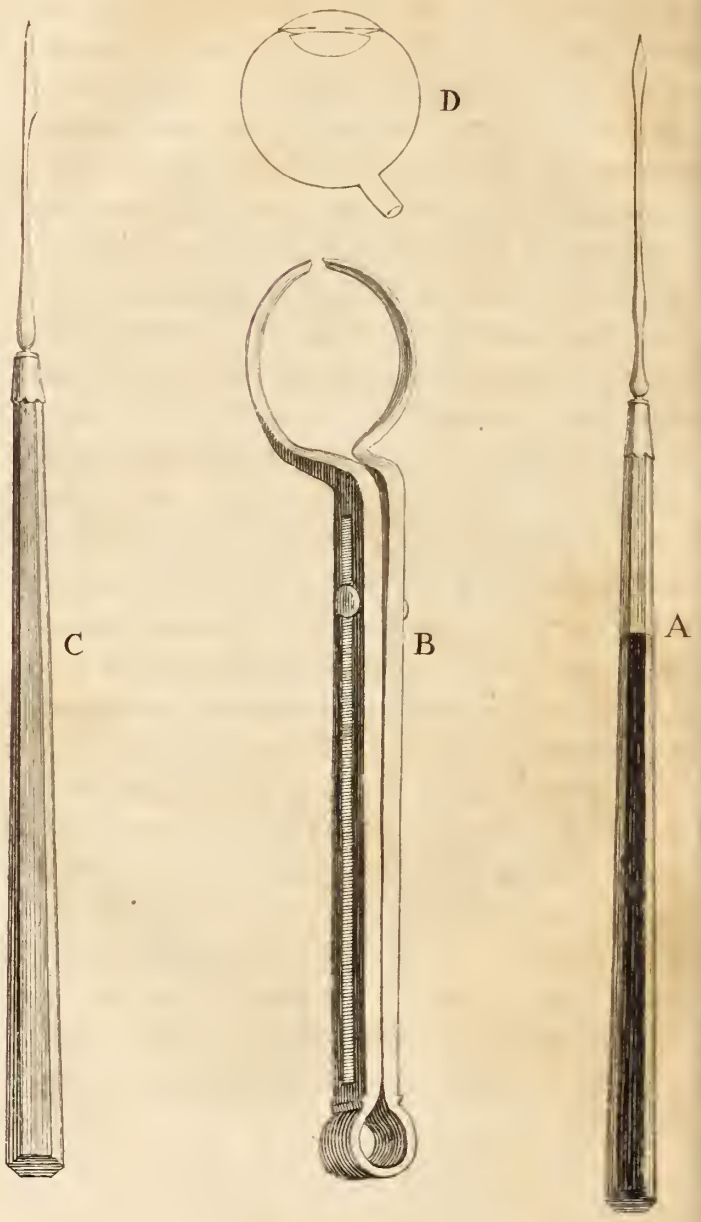
THE contracted *Iris*, from a Paralytick Diſorder, is ſo often complicated with an Affection of the *Retina*, that the Succeſs is very precarious in this Caſe. This Operation, by what I have ſeen, has anſwer'd beſt in Adheſions of the Cryſtalline Humour, though to ſpeak truly, but very ſeldom even there. As I would not miſlead any one who ſhall practiſe an Operation, not yet much known in the World, I do confeſs that either the danger of the *Iris* ſeparating from the *Ligamentum Ciliare*, or of the Wound not inlarging ſufficiently, do upon the whole make the Event very doubtful. I once perform'd it with tolerable Succeſs, and a few months after the very Orifice I had made contracted, and brought on Blindneſs again.

IN theſe two Chapters I have not once uſed the Word *Uvea*, but have made mention of the *Ligamentum Ciliare* two or three times; both which parts are but little underſtood for want of proper Explanation; but which muſt be rightly conceiv'd of in order to underſtand what I have ſaid upon theſe Diſeaſes.

THE

THE generality of Anatomiſts call that Membrane which I have ſpoke of under the name of *Iris*, the *Uvea*, and its Anterior *Lamina*, the *Iris*; others again call the Membrane *Uvea*, and the colour of it *Iris*; but both one and the other diſtinction confound Learners exceedingly, and take their riſe from a want of proper attention to the Hiſtory of Anatomy. The Antients, who have given moſt of the Names we now employ in the Deſcription of the Eye, were vers'd chiefly, if not altogether, in the Diſſection of Brutes; amongſt which thoſe of the graminivorous kind have a party-colour'd *Choroides*, one half of it being dark, and the other of a light ſhining Green; this laſt, from its reſemblance to an unripe Grape, was call'd the *Uvea*; but the ſucceeding Writers amongſt the Moderns applying themſelves to human Diſſections only, and not duly conſidering the difference of the human *Choroides*, which is nearly of an uniform colour, and of that above deſcribed, have retained the Appellation, though we have not the Thing. Hence has aroſe the great variety of miſapplication of this Word, which ought no more to be ſpoke of in the Anatomy of the human Eye, than the *Tunica Nictitans*, which is proper to certain Beaſts and Birds.

THE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THE *Ligamentum Ciliare* is that circular Line on the Globe of the Eye where the *Sclerotis*, *Choroides*, *Retina*, *Cornea*, *Proceſſus Ciliares*, and *Iris*, terminate, forming a whitiſh Ring ſomewhat denſer than any other part of the Coats; but ſince the inſtitution of this Term, the deſcription of the Part it implies has been very much neglected, and the Term itſelf confounded with the *Proceſſus Ciliares*; wherefore it was neceſſary to define it, that the proceſs of the Operation of the *Iris* might be better comprehended.

PLATE X.

The EXPLANATION.

A. THE Couching-Needle, the broad part of which towards the Point is flat on one ſide, but on the other is a little convex, to give it more Subſtance and Strength.

THE Handle of this Inſtrument is white Ivory, inlaid with a Streak of black in that part of it lying even with the convex Surface of the Blade: The meaning of which is, that by holding the Handle with the Streak upwards, we may be guided to depreſs the Membrane of a milky Cataract with the flat Surface, though the Subſtance of the Cataract ſwim-

ſwimming in the Eye obſcures the Needle, and prevents its being directed in a proper poſition by the Sight.

B. A *Speculum Oculi*, which is made to open or ſhut by an iron Button ſliding along a Slit in the Handle. This Inſtrument is compos'd of one piece of Steel, in ſuch a manner that it would fly open by its elaſticity, if the two branches of the Handle were not confin'd by the Button. The Circle of it ſhould be cover'd with Velvet, to make it lie ſofter on the Eyelids.

C. THE Knife for cutting the *Iris*, the Blade of which has but one Edge.

D. THE Figure of the Eye.

THE ſmall Arch on the Forepart of the Figure, is the *Cornea*; the two ſtrait Lines tending to each other are the *Iris*, and the Opening between them is the *Pupil*; the Space between the *Cornea* and the *Iris* is the anterior Chamber of the Eye; the Spheroidal Body is the *Cryſtalline Humour*; the Space between the *Iris* and Cryſtalline Humour is the *Poſterior Chamber*; and the two ſhort Lines which ariſe from the meeting of the *Cornea*, *Iris*, *&c.* and run upon the Cryſtalline Humour, are the *Proceſſus Ciliares*. The deſign of this Repreſentation is to ſhew the ſmallneſs of the Poſterior Chamber, and how ſome Light may paſs obliquely between

between the *Iris* and Cryſtalline Humour, through the Interſtices of the Ciliary Proceſſes, and occaſion that degree of Sight which People with Cataracts have.

CHAP. XXX.

Of the FISTULA LACHRYMALIS.

THE *Fiſtula Lachrymalis* is generally underſtood to be ſuch a Diſorder of the Canals leading from the Eye to the Noſe, as obſtructs the natural Progreſs of the Tears, and makes them trickle down the Cheek: But this is only the firſt and mildeſt Stage of the Diſeaſe; in the next, there is Matter diſcharged with the Tears from the *Puncta Lachrymalia*, and ſometimes from an Orifice broke thro' the Skin between the Noſe and Angle of the Eye: The laſt and worſt degree of it is when the Matter of the Abſceſs, by its long continuance, has not only corroded the neighbouring ſoft Parts, but alſo affected the ſubjacent Bone.

FOR the better underſtanding the Seat and Nature of this Diſtemper, I have here annexed a Repreſentation of the *Lachrymal* Ducts.

IN treating of the *Fiſtula Lachrymalis*, moſt Writers mention the Inflammation and Ulceration of the *Saccus* as being ſometimes the immediate Cauſes of it; but then they all ſuppoſe that the Tears becoming acrid and corroſive, excite the Inflammation and Abſceſs; though many of them imagine that the Tears themſelves not finding a way through the Naſal Duct, do from ſtagnating in the *Saccus*, corrupt and become the Matter diſcharged by the *Puncta Lachrymalia*; but the latter opinion is moſt certainly ill-grounded; for beſides that the Tears are not of a compoſition to become *Pus*, it may be obſerved almoſt at any time upon preſſing the Abſceſs, that the two Fluids appear unmixed; and with regard to the general Doctrine of the Sharpneſs of the Tears producing the Diſorder, I think it is much to be queſtion'd, ſince the *Cornea* and *Tunica Conjunctiva* being more ſenſible Membranes than the *Saccus*, would more readily be offended by them; but as we ſee they are not in the leaſt injured, and every part of an Animal Body is ſubject to Inflammation, *&c.* from internal Cauſes, I believe this external one may be juſtly doubted.

WHATEVER be the Cauſe of the Inflammation, whether the Small-pox, *Lues Venerea*,

rea, &c. the effect of it is an Obſtruction of the *Ductus ad Naſum*. That a total Obſtruction ſhould follow upon an Inflammation in ſo large a Veſſel as the Naſal Duct, I preſume is owing to its ſituation in the bony Groove of the *Os Unguis*, which not allowing it to dilate in its Inflammation and thickening, muſt neceſſarily make it fill up the whole Channel, and cauſe that Regurgitation of Tears and Matter which is the conſtant Symptom of this Diſeaſe.

SOME years ſince Monſieur *Annell* a *French* Surgeon recommended in the recent Fiſtula to paſs a ſmall Probe through one of the *Puncta Lachrymalia* into the *Saccus* and Noſe, in order to break the Concretions which were ſuppos'd to make the Obſtruction, and with a ſmall Pipe and Syringe to throw an Injection thro' the other, in order to waſh them away. This Method was at firſt received with great applauſe, and ſtill continues to be practiſed by ſome very eminent Surgeons; yet by what I have been able to learn from the Experiments of others, and the reaſon of the thing, I am by no means inclined to think favourably of the Invention; for as the very characteriſtick of this State of the Fiſtula is the Reflux of the Tears from the *Saccus*, the Channels leading to it from the *Puncta*

Lachrymalia muſt be ſuppoſed clear; and as to the Obſtruction in the Naſal Duct, an Injection thrown with ſo little force, can hardly be imagined ſufficient to remove it, and ſtill leſs, if it be true that the Obſtruction is not owing to any looſe Subſtance clogging up the Paſſage, but to an Inflammation of the Membranes.

IF then the Injection cannot aſſiſt by the force of its Stream, the advantage muſt ariſe from its balſamick Qualities; but no Surgeon at this time dilates an Abſceſs of any kind by Injections when the *Pus* is good-conditioned, and he can by Compreſs diminiſh the Cavity of it, as may be done in this very Caſe, and which ſhould be practis'd before any other Method is undertaken: Indeed *Annell* and his Followers, after the Injection, applied a Compreſs and Bandage, to the good effects of which, rather than any of the other Proceſſes, I am inclined to think their Succeſs was owing.

WHEN the quantity of Matter returned by the *Puncta* increaſes notwithſtanding the uſe of Compreſs, and the Tumour of the *Saccus* grows larger, it then becomes neceſſary to perform the Operation, the Deſign of which is to cure the Ulcer, and make way for the Tears into the Noſe.

THE

THE general Notion that the Abſceſs of the Bag always occaſions a Caries of the *Os Unguis*, perhaps may have led Surgeons into the Method of deſtroying both *Saccus* and Bone with a perforating Inſtrument, and afterwards more effectually with an actual Cautery, in order to remove the diſorder'd Bone, and at the ſame time to make an artificial Canal into the Noſe: But as there are many Inſtances of Cure by a mere Inciſion of the *Saccus Lachrymalis*, the rougher Method of Perforation ought not to be uſed, unleſs there is evidently a Caries in the adjacent Bone, or that after the Ulcer of the *Saccus* is heal'd the Tears cannot be made to paſs through the Duct, tho' even in that caſe the application of Fire is not only generally uſeleſs, but often proves hurtful, and defeats the very end it was intended to promote. The Deſign of the Cautery is to prevent the artificial Canal made by the Perforation from cloſing up; but the Operators who recommend it, confeſs that in Perſons who have been cauteriſed, even at the beſt, the Tears trickle down ever after; whereas that Accident does not ſo often attend on thoſe who are only perforated: The reaſon of this difference may perhaps be more clearly explained by a parallel Inſtance: If we divide a Vein quite

through, and cauteriſe its Extremities, 'tis well known that the Sloughs form'd by the Fire hardly ever ſeparate from the living parts of the Vein, until they are totally cloſed up ſo as to prevent any effuſion of the circulating Blood; the conſequence of which is, the breaking off the communication of the divided parts of the Vein; whereas if there was only an Opening made with a ſharp Inſtrument, or even a piece of the Vein carried away by it, the divided parts would ſoon re-unite, and the Circulation be continued through them: for the ſame reaſon, by the uſe of the Cautery, the communication between the *Puncta Lachrymalia* and *Saccus* will often be intirely deſtroyed, and the Perforation into the Noſe, though it remains open, will of conſequence not anſwer the purpoſe for which it was intended.

IT may perhaps be ſaid, that by introducing the Cautery through a *Canula*, the upper part of the *Saccus*, or Opening of the *Lachrymal* Channels, may be protected from theſe ill effects. But I believe it will plainly appear, by the rudeneſs of the Scar after the healing of the Wound, how powerfully Fire will work upon the neighbouring parts, notwithſtanding this precaution.

FROM

FROM what has been ſaid of the nature of this Diſeaſe, the uſe of Fire muſt be diſcarded in all the Stages of it, and even Perforation for the moſt part be practiſed only when the ſubjacent Bone is carious; but this circumſtance is very rare, and for my own part, ſince I have doubted its frequency, it has not been my fortune to meet with a ſingle inſtance of it; though I have had Fiſtula's of many years ſtanding under my care, in ſome of which the *Pus* has found iſſue through the Bag and Skin, and formed an external Ulcer likewiſe. The reaſon why the inferior part of the *Saccus* is not ſo often corroded as the ſuperior (in which caſe the Bone would neceſſarily be affected) is that here, as in every other part of the Body, Abſceſſes will break where they are leaſt under confinement, as in thoſe places they ſooner give way to the preternatural Influx of the Juices, and in conſequence becoming weaker, will ſooner be deſtroyed. Since therefore neither the long continuance of the Diſeaſe, nor the great Diſcharge of Matter, are poſitive Symptoms of a Caries, we ought to be well ſatisfied of it by the feel of the Probe before we perforate; but if upon opening the Bag, or in the courſe of the Dreſſing, it appears the *Os unguis* is bare,

we are not to wait for an Exfoliation, the Bone being ſo very thin, but to break through with a ſmall Perforator.

MANY Writers mention the ſucceſs of having ſometimes treated the *Fiſtula Lachrymalis* as a mere Abſceſs of the *Saccus*, though in general they recommend the uſe of Fire; but when the Abſceſs is ſo foul as not to cure by Inciſion, a piece of the Bag it ſelf muſt be cut away; and thus *Celſus* treated the *Fiſtula Lachrymalis* (tho' he alſo uſed the Cautery) without perforating.

THE manner of operating in thoſe Caſes where Perforation is not requir'd, is this: Suppoſing the Abſceſs not broke, chooſe a time when it is moſt turgid with Matter; and to this end you may ſhut the Patient's Eye the Day before, and lay little ſlips of Plaiſter upon one another acroſs the Lids, from about the *Puncta Lachrymalia* to the internal Angle; which compreſſing their Channels and preventing the Flux of the Matter that way, will heap it up in the Bag, and indicate more certainly the place to be cut. If the Abſceſs is already open, the Orifice and Probe will inform you where to enlarge: Then placing the Patient in a Seat of convenient height for the management of your Hand,

Hand, with a ſmall Inciſion Knife dilate from the upper part of the Bag down to the edge of the Orbit, without any regard to the Tendon of the Orbicularis Muſcle, or fear of wounding the Blood-Veſſels, tho' if you ſee the Veſſels 'tis proper to ſhun them: The length of this Inciſion will be near four tenths of an Inch. It has been advis'd in opening the Bag to introduce a ſmall Probe through one of the *Puncta* into its Cavity, to prevent wounding the poſterior Part of it, but I think this exceſs of care may be more troubleſome than uſeful, ſince in ſo large a Veſſel a very ſmall ſhare of dexterity is ſufficient to avoid the miſtake: In making this Inciſion care muſt be had not to cut too near the joining of the Eye-lids, becauſe of the Deformity of the ſucceeding Scar: tho' the blear Eye or uneven Contraction of the Skin in that Part, after the Operation, is generally owing to the uſe of the Cautery, and not to the Wound of the Tendon of the Orbicularis Muſcle; for this laſt is neceſſarily from its Situation always cut through, but without any Inconvenience, becauſe of the firm Cicatrix afterwards that fixes it ſtrongly to the Bone.

WHEN

WHEN the Bag is open it is to be filled with dry Lint, which the next Day may be removed, and exchanged for a Doſſil dipt in a ſoft digeſtive Medicine: This muſt be repeated every day once or twice, according to the quantity of the Diſcharge: Now and then, when the Matter is not good, uſing the Precipitate Medicine, and from time to time a Sponge-Tent, to prevent the too ſudden reunion of the upper part of the Abſceſs. When the Diſcharge begins to leſſen, it will be proper to paſs a ſmall Probe, or Silver Wire through the Naſal Duct into the Noſe, every time it is dreſt, in order to dilate it a little, and make way for the Tears and Matter which by their Drain will continue to keep it open. This Method muſt be followed 'till the Diſcharge is nearly over (which will be in a few Weeks) and then dreſſing ſuperficially with dry Lint, or any drying Application, the Wound will ſeldom fail of healing. After the Cure, in order to prevent a Relapſe, it will be proper, for a few Weeks, to wear the compreſſing Inſtrument repreſented in the Copper-plate.

WHEN the Bone is bare, and the Fiſtula requires Perforation, the Perforator is not to be

be carried down the *Ductus ad Naſum*, for fear of boring into the *Sinus Maxillaris*, but more internally towards the Noſe, which will bleed freely if properly wounded: The Wound afterwards ſhould be dreſs'd with Doſſils in the manner above deſcribed, and the Probe or Silver Wire be every Day paſs'd through the *Ductus ad Naſum*, leſt after the Cure of the Abſceſs it ſhould ſtill remain obſtructed; and if upon tryal the Duct ſhould be ſo fill'd up as not to admit the Wire, it will be right to keep open the Perforation into the Noſe with a ſmall Tent 'till the Diſcharge is almoſt quite ceaſed.

I SHALL finiſh this Chapter with obſerving, that though a weeping Eye will ſometimes remain after the Treatment of the *Fiſtula Lachrymalis*, yet the Inconvenience of it is ſo ſmall, compar'd with a Diſcharge of Matter, that it would be happy if this was the worſt Conſequence of the Operation; but it ſometimes happens that the Ulcer when heal'd, breaks out again, and ſometimes too that it cannot be quite heal'd, by reaſon of the inferior part of the *Saccus* and Naſal Duct lying ſo deep below the edge of the Orbit, which makes the proper application of Dreſſings to the bottom of the Ulcer more difficult: 'Tis this ſituation of the *Saccus* that

in

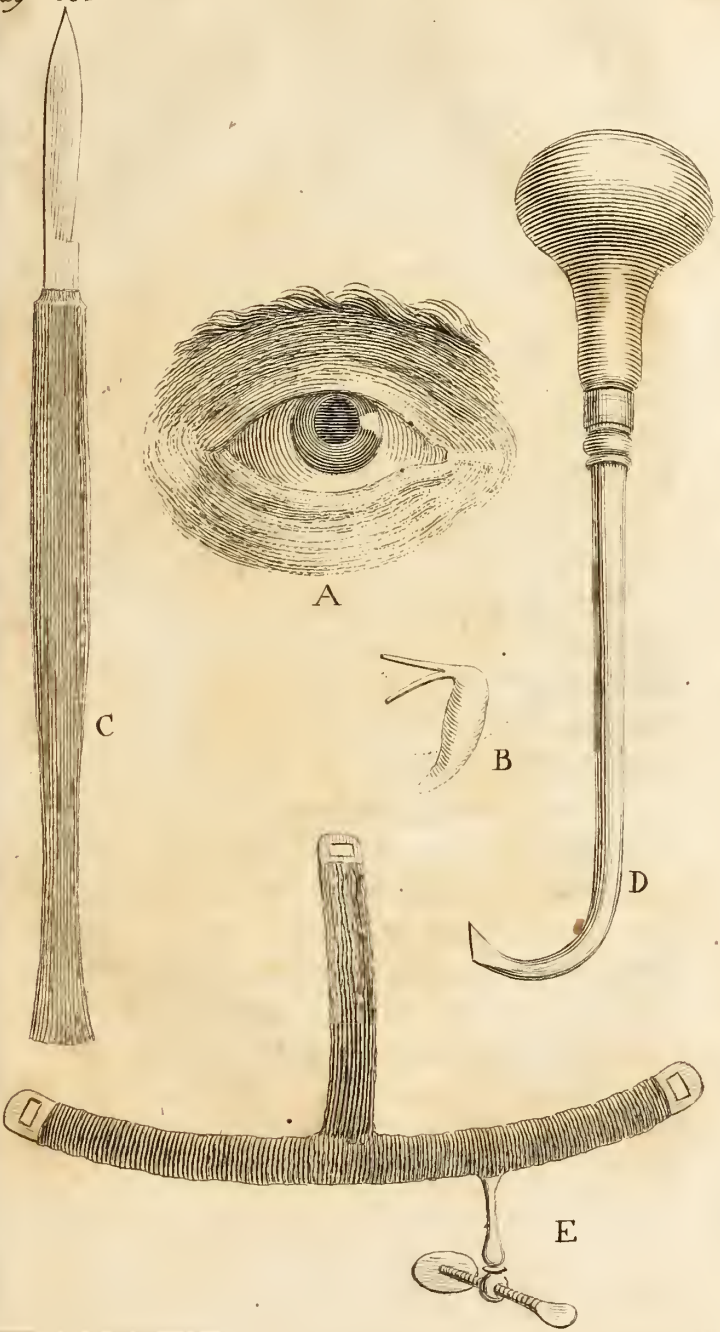
in a great meaſure prevents any good effects from burning and perforating, if the Perforation only be dreſs'd, as is very much practis'd, ſince the Dreſſing will be full four tenths of an Inch above the loweſt part of the Ulcer.

WITH regard to the trickling of the Tears, though generally ſpeaking it is prevented by the Method I have recommended, yet it does not appear at all wonderful it ſhould ſo frequently be the conſequence of the others, when we conſider how much at beſt the *Saccus* contracts, after a great deal of it has been deſtroyed, and how poſſible it is for the Wound to fill up with Granulations of Fleſh, which cannot fail to prove an obſtacle to their Paſſage into the Noſe.

PLATE XI.

The EXPLANATION.

A. The Eye, with the Skin of the Eye-lids denuded, in order to ſhew the Orbicularis Muſcle: The white Streak running from the inner Angle of the Eye towards the Noſe is call'd the Tendon of the Orbicularis Muſcle, though I think it rather a ſmall Ligament. At a little diſtance from the internal Angle, on the edge of the Eye-lids may be obſerv'd two black Spots, which are the Orifices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Orifices of the Lachrymal Channels, and call'd the *Puncta Lachrymalia.*

B. The exact Dimenſion of the Lachrymal Channels and Bag; the prick'd Line repreſents the edge of the Orbit. I have here taken care to ſhew the oblique Direction of the Bag as it runs from the Noſe towards the Orbit.

FROM comparing this Figure with the Situation of the *Puncta Lachrymalia* in the foregoing one, it will appear that only the upper part of the Bag lies under the Tendon of the Orbicularis Muſcle, and conſequently is the only part wounded, and burnt through in the common Operation, when the Perforator is carried horizontally from the Angle into the Noſe, as is generally practis'd. And I believe the ſize of the Bag here repreſented, though not ſo large as when it is diſeaſed, will at once ſhew the Propriety of opening it firſt by an Inciſion down to the Orbit, or even farther, and then treating the Fiſtula with the ſame Dreſſings as other fiſtulous Ulcers.

C. A ſmall inciſion Knife, more handy than a larger for opening the Bag.

D. The Perforator to deſtroy the *Os Unguis*, if ever it ſhould happen to be neceſſary.

E. An

E. An iron Inſtrument made thin and pliable, to ſet even on the Forehead, and for uſe cover'd with Velvet; the Holes at the three Extremities receive two pieces of Ribband, by which it is faſten'd on the Forehead: The Button at the end of the Screw is to be plac'd on the *Saccus Lachrymalis*, and the Screw to be twiſted 'till the Button makes a conſiderable Preſſure on the Bag: The Button ſhould be cover'd with Velvet, and a little Compreſs of Plaiſter be laid on the Bag before it is applied, to prevent the Skin being gall'd by the Preſſure. The little branch of Iron which receives the Screw, muſt be ſoft enough to admit of bending, otherwiſe it will be difficult to place the Button exactly on the Bag. This Inſtrument is for the left Eye only; it ſhould be wore Night and Day in the beginning of a Fiſtula, and after a Fiſtula has been heal'd by Inciſion; but as the ſucceſs depends upon the exact Situation of the Button upon the Bag, it ſhould be carefully look'd after.

CHAP.

CHAP. XXXI.

Of BRONCHOTOMY.

THE Operation of *Bronchotomy* is an Inciſion made into the *Aſpera Arteria*, to make way for the Air into the Lungs, when Reſpiration is obſtructed by any Tumour compreſſing the *Larynx*, or ſome other diſorder of the *Glottis* and *Aſpera Arteria*, without any apparent Tumour. Theſe are the Caſes in which it is ſuppos'd to be uſeful, but I am inclin'd to think it hardly ever can be of ſervice, but where the Complaint is attended with ſome Swelling, ſince I cannot find any Inſtance to my ſatisfaction of good done by this Operation in the other Species of *Angina*, nor has it appear'd upon the examination of ſeveral who have died of it, that the Air was obſtructed by any Stricture of the *Glottis*, or *Aſpera Arteria:* If then the Paſſage remains open, and Reſpiration be diſturb'd from other Cauſes, the making a new Orifice can be but of little advantage: I once perform'd it under this circumſtance but it gave no ſort of Relief.

UPON

UPON the whole then I imagine the practice of this Operation uſeful only in that Species of *Angina* where the Throat is exceedingly enlarg'd by the ſwelling of the Thyroid Gland, and parts adjacent, call'd *Bronchocele*, which by their weight may preſs upon the *Trachea* ſo as to make it in ſome degree narrower, and prevent the free courſe of the Air to and from the Lungs. But ſhould any one judge it proper in the Inſtance I object to, the Operation is ſo eaſy to perform, and ſo utterly void of any danger whatſoever, notwithſtanding the frightful Cautions laid down by Writers, that I would not altogether diſcourage the Trial 'till I have farther proof of its Inſignificance.

THE manner of doing it is by making a longitudinal Inciſion through the Skin, three quarters of an Inch long, between the third and fourth Ring of the *Trachea*, if you have the choice of the place; and when you cannot make it ſo high, the Rule will be to wound a little below the Tumour: It is always advis'd to pinch up the Skin for this Proceſs, which however may be left to the diſcretion of the Surgeon. When the Skin is cut through, you muſt make a ſmall tranſverſe Inciſion into the Windpipe, and immediately intro-

introduce a crooked *Canula* near half an Inch long, of Silver or Lead, with a couple of little Rings at the top of it, through which a Ribband may be paſs'd round the Neck to keep it fix'd in the Wound.

SOME have preſcribed making an Inciſion through the Skin and *Trachea* at once, with a Lancet or Knife, as the more eaſy and expeditious Method; and I once ſaw it perform'd in that manner, but it proved very inconvenient, for the Windpipe in Reſpiration moving up and down, ſlip'd from the Orifice of the Skin, and made it very difficult to introduce the *Canula*, and afterwards to maintain it in its Situation: Wherefore I think it abſolutely neceſſary to make the external Inciſion longitudinal, and even pretty large as I have directed above.

THE Caution laid down of raiſing the *Sternohyoidei* and *Sternothyroidei* Muſcles, before cutting the Windpipe, is not to be regarded; and as to the diviſion of the recurrent Nerves and great Blood-Veſſels, ſo much apprehended in this Operation, 'tis not in the leaſt to be fear'd, ſince they are quite out of the reach of the Inſtrument, as any one skill'd in

the Anatomy of thoſe Parts muſt very well know.

THE Method of Dreſſing will be eaſily underſtood, ſince after the Patient can breathe by the natural Paſſage, if you withdraw the hollow Tent, the Wound will become a ſimple one, and notwithſtanding its penetration through a Cartilage into a large Cavity, require a ſuperficial Application only.

CHAP. XXXII.

Of the Extirpation of the TONSILS.

THESE Glands ſometimes grow ſo large and ſchirrous as to become incurable, and even to threaten Suffocation if not extirpated: The manner of doing this Operation formerly, was by cutting them off; but the almoſt conſtant conſequence of this Wound was a violent Bleeding, and ſometimes too a mortal one; on which account it is rejected in favour of the Ligature, which is not only void of danger, but alſo ſeldom fails of cure.

IF

IF the baſis of the Tonſil is ſmaller than the upper part, you may paſs the Ligature by tying it to the end of a Probe, bent into the form of an Arch, which being carried beyond the Gland, and round it, is to be brought back again; this done, you may eaſily tie it by the means of an Inſtrument of Mr. *Cheſelden*'s Contrivance, which holds one end of the String on the ſide of the Tonſil next the Throat, while you make the Knot by puling the other with the right Hand quite out of the Mouth, as will be eaſily underſtood by the draught in the Copper-plate. Should it happen that the Tonſils are Conical, ſo that the Ligature will neceſſarily ſlip over its Extremity when we attempt to tie, in this caſe he has recommended an Inſtrument like a crooked Needle, ſet in a Handle, with an Eye near the point, threaded with a Ligature, which is to be thruſt through the bottom of the Gland, and being laid hold of with a Hook, the Inſtrument is to be withdrawn; then pulling the double Ligature forwards, it muſt be divided, and one part be ty'd above, and the other below the Tumour: The Knots are to be always double, and the Ligature to be cut off pretty near

them: If after four or five Days they ſlip, or ſeem to have mortify'd the Tonſil only in part, you muſt repeat the whole Operation, though I think all I have done have ſucceeded the firſt time.

THIS kind of Extirpation is more eaſily practiſed in large bleeding Piles, that are eſteemed incurable, and if the ſucceſs of it was better known, the Operation would be much more frequent. I have by this Method cured ſeveral People that have diſcharged Blood every ſtool for many Years, and ſome that have been almoſt quite deſtroy'd by the repeated Loſſes of it. When the Piles are withinſide of the Inteſtine, you muſt place your Patient over a Fomentation in a Cloſe-ſtool, and have a crooked Needle with a double Ligature ready to paſs through them, when by ſtraining they are puſh'd out of the *Anus* (for ſometimes the Inteſtine will return ſuddenly) and tie above and below as in the Inſtance of the Tonſil. Sometimes the Piles are of that ſhape as to admit a ſingle Ligature to by ty'd round them, without the help of a Needle, which is leſs painful: If there are ſeveral, you muſt only tie one or two at a time, for the Pain of the Ligature is exceſſive, and would

would be intolerable if many were ty'd at once: However every five or ſix Days the Operation may be repeated 'till all are extirpated, and the Parts muſt be kept ſupple by ſome emollient Ointments.

I HAVE ſeen the Cure of theſe attempted by cutting off, but the Patient eſcap'd very narrowly from dying of the Effuſion of Blood.

THE *Uvula* is ſubject to ſo great a degree of Relaxation ſometimes, that it almoſt choaks the Patient; the readieſt Cure is cutting off all but half an Inch of it, which may be done at one ſnip with a pair of Sciſſars, laying hold of it with a Forceps, leſt it ſhould ſlip away. I once cut off a *Uvula* that lay roll'd upon the Tongue about two Inches; the Patient recover'd immediately, and never felt any Inconvenience afterwards.

PLATE XII.

The EXPLANATION.

A. THE bent Probe, with the Ligature made of the ſame Thread as the Ligatures for tying the Blood-Veſſels.

B. THE Iron Inſtrument for tying the Tonſils.

I HAVE here made a Knot upon a Pin, which is to be ſuppos'd in the ſituation of one of the Tonſils, and may eaſily be imagin'd to have been tied by puſhing the String beyond it, when held firm by one Hand againſt the Inſtrument, and pull'd by the other on the outſide of the Mouth.

THIS Inſtrument is alſo of great ſervice in extirpating by Ligature, a Species of Schirrus that ſometimes grows in the Neck of the *Uterus*.

C. THE Needle with the Eye towards the point, for paſſing the Ligature through the Tonſil, when the Baſis is larger than the Extremity.

D. A *Canula* made of Silver or Lead, to be us'd in the *Empyema*.

E. A *Canula* to be us'd in *Bronchotomy*.

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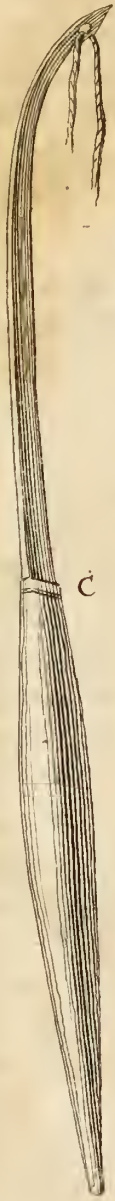

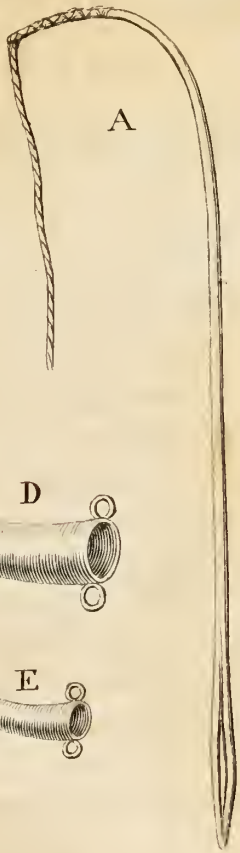
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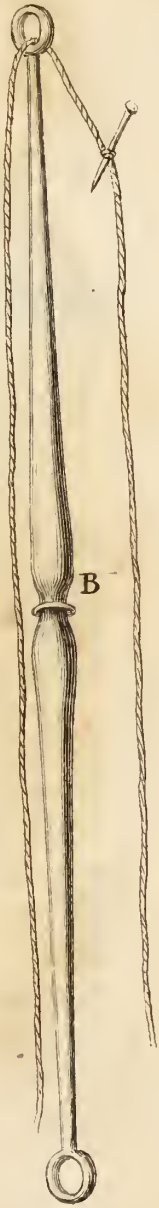
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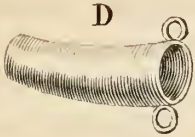
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To keep the *Canula*'s in their place, ſmall Ribbands may be paſs'd through the Rings of them, and carried round the Body and Neck; or they may be held by a Ligature run through and faſten'd to a Hole cut in a piece of ſticking Plaiſter, which is to be laid on each ſide ſide of them.

CHAP. XXXIII.

Of the POLYPUS.

THE *Polypus* of the Noſe is ſaid to be an Excreſcence of Fleſh, ſpreading its Branches amongſt the *Laminæ* of the *Os Ethmoides*, and through the whole Cavity of one or both Noſtrils. It does not very often happen to both ſides of the Noſe at once, but when that is the caſe, it is very troubleſome, almoſt ſuffocating the Patient, at leaſt making Reſpiration very difficult. The Intent of the Operation is the removal of this Obſtacle, but as it is attended with different Events from the variety of Nature in the ſeveral ſorts of *Polypus*'s, I ſhall endeavour to diſtinguiſh

their Species, ſo as to lead us into ſome Judgment of the greater or leſs probability of Succeſs.

THEY all ariſe from the Membrane ſpread upon the *Laminæ Spongioſæ*, pretty nearly in the ſame manner as the *Hydatids* of the *Abdomen*, in one kind of Dropſy, do from the ſurface of the Liver, or as Ganglions from the Tendons, borrowing their Coats from a Production of its Fibres and Veſſels: If they appear ſoft, and of the Colour of the *Serum* of the Blood, in all likelihood they are form'd of ſuch a ſort of Water contain'd in Cyſts, which upon breaking the Membrane leaves ſo little hold for the Inſtrument, that but a ſmall part of it can be extracted afterwards. This *Polypus* is to be left to harden before the Operation be undertaken, which in proceſs of time it generally will do. In the next degree of Conſiſtence they retain pretty near the ſame Colour, and are often partly watry and partly of a viſcid Texture, which though not tenacious enough to admit of drawing them out by the Roots, may at ſeveral attempts be taken away by bits. The next degree of Conſiſtence, is that which is neither ſo ſoft as to be ſqueez'd to pieces, nor ſo hard and brittle

as

as to crumble, or adhere to the Membrane with that force as not to admit of ſeparation: This, to be ſure, is the moſt favourable one. The laſt is hard and ſchirrous, adhering ſo tight as to tear rather than ſeparate in the Extraction, and ſometimes even tends to degenerate into a Cancer: This *Polypus* is very difficult of cure.

THE *Polypus* ſometimes dilates to that degree, as not only to extend beyond the *Os Palati*, and hang over the *Oeſophagus* and *Trachea*, but alſo ſpreading into the *Sinus maxillaris*, ſo exactly fills up every Interſtice of the Noſe, as to obſtruct the lower Orifice of the *Ductus ad Naſum*, and prevent the deſcent of the Tears, which neceſſarily muſt return through the *Puncta Lachrymalia*. When the *Polypus* appears in the Throat, it is always adviſeable to extract it that way, it being found by experience more ready to looſen when pull'd in that Direction than by the Noſe. To this end it would be right, before undertaking the Operation, to let your Patient lie ſupine two or three hours, which will bring it ſtill farther down, for the Body of the *Polypus* does not univerſally adhere, and will by its weight ſtretch out the Fibres by

by which it is connected to the Nose; nay, there are Instances where by a little Effort, such us Hawking, they have dropt quite off.

THE Method of Extracting is by a pair of Forceps, with a Slit at their Extremities for the better hold, which must be introduc'd into the Nostril about an Inch and a half, to make more sure of it towards the Roots; then twisting them a little from one side to the other, you must continue in that Action while you pull very gradually the body of the *Polypus*. If it breaks, you must repeat the Extraction as long as any remains, unless it is attended with a violent Hæmorrhage, which is an Accident that sometimes follows upon the Operation, and seldom fails when the Excrescence is schirrous: However, the Surgeon is not to be alarmed at the appearance of an immoderate Effusion the moment after the Separation, for generally speaking the Vessels collapse very soon again; but if they do not, dry Lint, or Lint dipt in some Styptick, will readily stop it.

AFTER the Extirpation it has been usual, in order to prevent a Relapse, to dress with Escharotick Powders, and even to burn with the actual Cautery; but neither the one or the

the other can be of great ſervice in this Caſe, and both are painful and dangerous. If ever the uſe of corroſive Medicines is adviſeable, it ſhould be for deſtroying the remainder of a *Polypus*, that cannot all be taken away, and then the Eſcharoticks may, in my opinion, be better convey'd to the part by a long Tent, than a Seton paſs'd through the Noſe and Mouth, which is difficult to do without hurting the Patient, and very naſty to bear, though this is the Method at preſent practis'd and recommended by ſome eminent Surgeons.

CHAP. XXXIV.

Of the HARE LIP.

THIS Diſeaſe is a Fiſſure in the Upper Lip, with want of Subſtance, and is a natural Defect, the Patient being always born with it, at leaſt that Species of Hare Lip which requires the Operation I am going to deſcribe. The Cure is to be perform'd by the twiſted Suture, the Explanation of which I have

have reſerved for this Chapter. There are many Lips where the loſs of Subſtance is ſo great, that the Edges of the Fiſſure cannot be brought together, or at beſt where they can but juſt touch, in which caſe it need not be advis'd to forbear the attempt: It is likewiſe forbid in young Children, and with reaſon, if they ſuck; but otherwiſe it may be undertaken with great ſafety, and even with more probability of Succeſs, than in others that are older.

IT is not uncommon for the Roof of the Mouth to be fiſſur'd likewiſe, but this is no Objection to the Operation, if the Skin of the Lip is looſe enough to admit of Re-union.

THE manner of doing it is this. You firſt with a Knife ſeparate the Lip from the Upper Jaw, by dividing the *Frænulum* between it and the Gums; then with a thin pair of ſtrait Sciſſars cut off the callous Edges of the Fiſſure the whole length of it, obſerving the Rule of making the new Wound in ſtrait Lines, becauſe the ſides of it can never be made to correſpond without this Caution. For inſtance, if the Hare Lip had this ſhape, the Inciſion of the Edges muſt be continued in ſtrait Lines,

'till

'till they meet in the manner here repreſented. The two Lips of the Wound being brought exactly together, you paſs a couple of Pins one pretty near the top, and the other as near the bottom, through the middle of both Edges of it, and ſecure them in that ſituation by twiſting a piece of waxed Thread croſs and round the Pins ſeven or eight times; you muſt then cut off the Points, and lay a ſmall Bolſter underneath them to prevent their ſcratching: But when the lower part only of the Hare Lip can be brought into Contact, it will not be proper to uſe more than one Pin.

THE Pins I employ are made three fourths of their lengths of Silver, and the other part towards the point of Steel; the ſilver Pin is not quite ſo offenſive to a Wound as a braſs or ſteel one; but a ſteel Point is neceſſary for their eaſier penetration, which indeed makes them paſs ſo readily, that there is no need of any Inſtrument to aſſiſt in puſhing them thro': The practice of bolſtering the Cheeks forward does little or no ſervice to the Wound, and is very uneaſy to the Patient, wherefore I would not adviſe the uſe of it. The manner of dreſſing will be to remove the Applications which

which are quite ſuperficial, as often only as is neceſſary for cleanlineſs. The Method I would recommend is to deſiſt the three firſt days, and afterwards to do it every day, or every other day: I do not think it at all requiſite to dreſs between the Jaw and Lip where the *Frænulum* was wounded, there being no danger that an inconvenient Adhéſion ſhould enſue. In about ten or eleven days the Parts are uſually united, when you muſt gently cut the Threads, and draw out the Pins, applying upon the Orifices a piece of Plaiſter and dry Lint.

THE twiſted Suture is of great ſervice in Fiſtula's of the *Urethra* remaining after the Operation for the Stone, in which caſe the callous Edges may be cut off, and the Lips of the Wound be held together by this Method.

CHAP.

CHAP. XXXV.

Of the WRY NECK.

THE Operation of cutting the Wry Neck is very uncommon, and is never to be practiſed but when the Diſorder is owing to a Contraction of the *Maſtoideus* Muſcle only, as it can anſwer no purpoſe to ſet that Muſcle free, by dividing it, which is all that is to be done, if the others of the Neck are in the ſame ſtate, and more eſpecially if it has been of long ſtanding from Infancy, becauſe the growth of the *Vertebræ* will have been determined in that Direction, and make it impoſſible to ſet the Head upright.

WHEN the Caſe is fair, the Operation is this. Having laid your Patient on a Table, make a tranſverſe Inciſion through the Skin and Fat, ſomething broader than the Muſcle, and about one third of its length from the *Clavicle*; then paſſing the probed Razor with care underneath the Muſcle, draw it out and cut the Muſcle. The great Veſſels of the Neck lie

lie underneath, but I think, when we are aware of their ſituation, there is no great danger of wounding them. After the Inciſion is made, the Wound is to be cramm'd with dry Lint, and always dreſs'd ſo as to prevent the Extremities of the Muſcle from re-uniting; to which end they are to be ſeparated from each other as much as poſſible, by the aſſiſtance of a ſupporting Bandage for the Head, during the whole time of the Cure, which will generally be about a Month.

PLATE XIII.

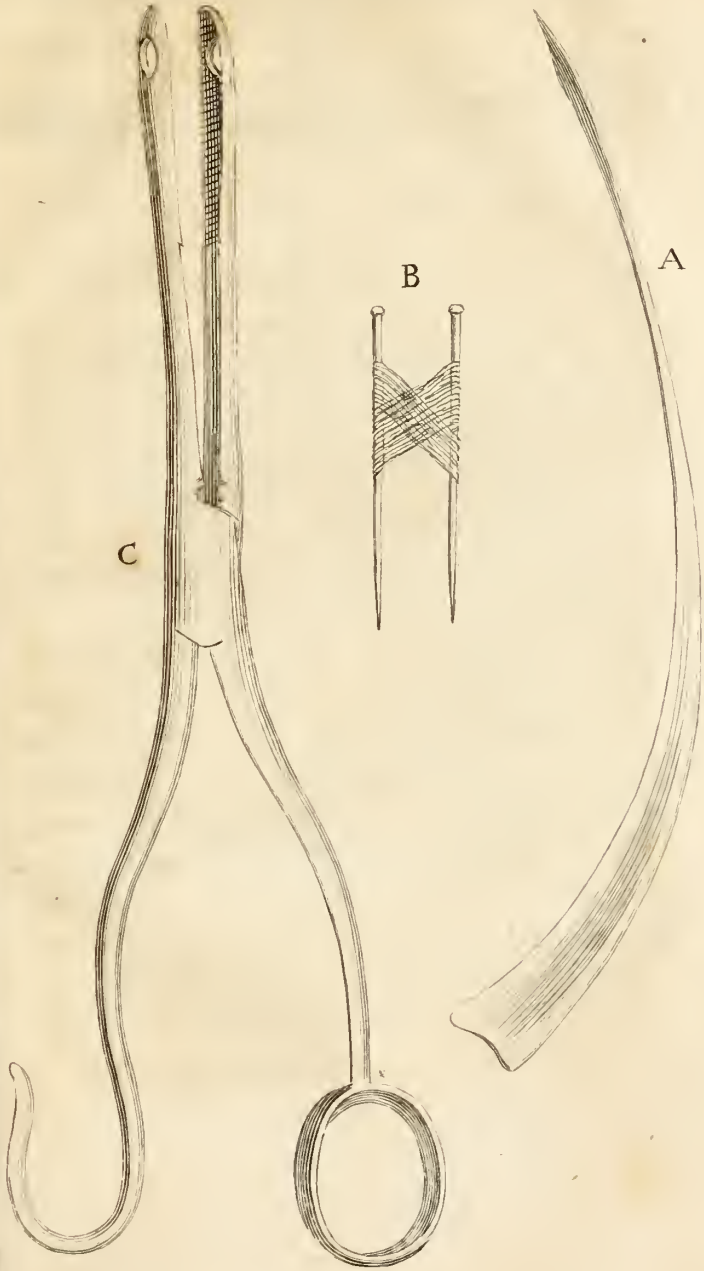
The EXPLANATION.

A. THE Inſtrument call'd the Probe-Razor, to cut the *Maſtoideus* Muſcle in the wry Neck, and is ſharp only about half its length, at that end where the Blade is broad.

B. The two Pins with the twiſted Suture, us'd in the Hare Lip.

C. The *Polypus* Forceps, with one of the Rings open for the reception of the Thumb, which would be cramp'd in pulling the Forceps with much force, if it was receiv'd in the ſame ſort of Ring as in the other Handle.

'Tis


A
B
C

'Tis for this reaſon I have repreſented the Stone Forceps with open Rings.

CHAP. XXXVI.

Of the ANEURISM.

THIS is a Diſeaſe of the Arteries, in which, either by a preternatural Weakneſs of any part of them, they become exceſſively dilated, or by a Wound through their Coats, the Blood is extravaſated amongſt the adjacent Cavities. The firſt Species of *Aneuriſm* is incident to every part of the Body, but does not often happen, except to the Curvature of the *Aorta*, which is ſubject to this Diſorder from the extraordinary impulſe of the Blood on that Part; from the Curvature it runs upwards along the Carotids or Subclavians, generally increaſing, 'till by its great Diſtenſion it is ruptur'd, and the Patient dies.

THERE have been great Diſputes amongſt Writers concerning the nature of this Dilatation of the Artery, ſome even denying the

Fact, and ſuppoſing it always a Rupture; ſome, that all the Coats are diſtended; others, only the external one; and again others, whoſe Doctrine has been the beſt receiv'd, that the internal Coat was ruptur'd, and the external dilated: Theſe laſt have ſupported their Hypotheſis with Arguments drawn from the Anatomy of the internal Coat, which is ligamentous, and incapable of much Diſtenſion; ſo that if an Artery be inflated with a ſufficient force, the Air will burſt that Coat, and expand the outer one, that is, make an artificial *Aneuriſm*, in the ſame manner as Blood is ſuppoſed to make a natural one: But this Argument is of little force when we conſider, that there are many parts of an animal Body which violence cannot ſtretch conſiderably, but which, by the gradual Influx of the Juices, become ſuſceptible of monſtrous Diſtenſion, as is the caſe of the *Uterus*, and upon Obſervation is evidently the caſe likewiſe of all the Coats of the Artery, as I have had an opportunity to examine in ſeveral *Aneuriſms* in the Collection of Dr. *Douglas*, which he has been ſo kind to lend me for that purpoſe.

THERE are ſeveral Hiſtories given of *Aneuriſms* of the Curvature of the *Aorta*, in ſome of which the Veſſel has been ſo exceſſively dilated as to poſſeſs a great ſpace of the upper part of the *Thorax*; and the moſt curious circumſtance to be gather'd from them is, that the Spot of the Veſſel which is weakeſt, and where the Diſeaſe begins, generally gives way in ſuch a manner to the force of the Blood continually puſhing it outwards, as to form a large Pouch or Cyſt, with Coats nearly as thick as thoſe of the Artery itſelf: However the thickneſs of the Coats of theſe Cyſts will laſt but to a certain period, for when the Veſſels of the Coats can no longer conform to the extenſion, the Circulation grows languid, the Cyſt becomes thinner at its Apex, and ſoon after burſts.

FROM this Deſcription of the Cyſt, it will be underſtood to reſemble the Bladder, having a large Cavity, and a narrow Neck or Opening.

THE Symptoms of this *Aneuriſm* are a ſtrong Pulſation againſt the *Sternum* and Ribs every *Syſtole* of the Heart, and when it extends above the *Sternum*, a Tumour with

Pulsation: Upon Dissection, the Ribs, *Sternum*, and *Clavicle* are sometimes found carious, from the Obstruction of the Vessels of the *Periosteum*, which are press'd by the Tumour. What are the Causes of a particular Weakness in any of the Coats of the Artery, I cannot take upon me to determine: but 'tis worth observing, that the dilated *Aorta* every where in the neighbourhood of the Cyst is generally ossify'd; and indeed Ossifications, or Indurations of the Artery, appear so constantly in the beginnings of *Aneurisms*, that 'tis not easy to judge whether they are the Cause or the Effect of them.

WHAT I have spoke of hitherto has been only the *Aneurism* of the *Thorax* from an internal Disorder; *Aneurisms* of the Extremities are for the most part owing to Wounds, though when they happen of themselves they differ very little from the Description I have given of that in the *Thorax:* The further Symptoms of them are (besides Pulsation) the Tumour's being without Discolouration in the Skin, its subsiding when press'd by the Hand, and immediately returning when the Hand is taken away; though if it be upon the point of bursting, the Skin will grow inflamed, and

the

the coagulated Blood in the Cyſt will ſometimes make the Pulſation much leſs perceptible.

THIS Species of *Aneuriſm* may ſometimes be ſupported a great number of Years, if we reſiſt its Dilatation by proper Bandage; but there is danger of its burſting otherwiſe, and if it be pretty large, of rotting the adjacent Bones.

A SOUND Artery wounded through part of its external Coat, would in all probability produce nearly the ſame appearances as where the whole Coat is weakened from an Internal Indiſpoſition, and this moſt likely is the caſe after bleeding in the Arm, when it has not been immediately perceiv'd that the Artery was prick'd, and the Tumour has begun to form ſome days after the Puncture; tho' the common appearance of an *Aneuriſm* from the Wound of a Lancet, is a diſcharge of Blood firſt through the Orifice of the Skin, and, upon being ſtopt from bleeding outwardly, an Inſinuation of it among all the Muſcles as far as it can ſpread, in the Shoulder and Arm; here the Arm grows livid from the *Ecchymoſis*, and the Blood coagulating to the conſiſtence of Fleſh, prevents any ſenſible

Pulſation, and when a Cyſt riſes near the Orifice of the Artery, 'tis for the moſt part form'd by the *Aponeuroſis* that runs over the Veſſel, which admitting of ſome extravaſated Blood underneath it, becomes exceſſively thicken'd and expanded: This Membrane I judge muſt make the Cyſt, otherwiſe we could not upon opening the Tumour in the Operation diſcover ſo readily the Puncture, or if the Coats of the Artery made it, we could not ſeparate it diſtinctly from the Veſſel, which would be always dilated above and below the Cyſt, as we ſee in other *Aneuriſms*, but in this it rarely occurs.

THERE are ſome few Inſtances of ſmall *Aneuriſms* and Punctures of the Artery from bleeding, doing well by Bandage, but they almoſt all require the Operation at laſt, which is to be perform'd nearly in the ſame manner in every part; and ſuppoſing it in the bend of the Arm, is to be done after the following Method.

HAVING applied the Tournequet near the Shoulder, and laid the Arm in a convenient ſituation, make an Inciſion on the inſide of the *Biceps* Muſcle, above and below the Elbow a conſiderable length, which being in the

the courſe of the Artery, will diſcover it as ſoon as you have remov'd the coagulated Blood, which muſt be all pull'd away with the Fingers, the Wound being dilated ſufficiently for that purpoſe: If the Orifice does not readily appear, let the Tournequet be looſened, and the effuſion of Blood will direct you to it; then carefully carrying a crooked Needle with a Ligature under it, tie the Veſſel juſt above the Orifice, and paſſing the Needle again, make a ſecond Ligature below it to prevent the return of the Blood, and leave the intermediate piece of the Veſſel to ſlough away without dividing it. To avoid wounding or tying the Nerve in making the Ligature, the Artery may be cleared away from it firſt, and held up with a Hook; but I think, if we are aware of the ſituation of the Nerve, there is no great danger of hurting it. After the Operation the Arm muſt be laid eaſy, on a Pillow in Bed, and the Wound be treated in the common Method, keeping it in that poſture a fortnight or three weeks, eſpecially if it ſhould ſwell much, and not digeſt kindly.

IN doing this Operation, it will be proper to have the amputating Inſtruments ready, leſt it ſhould be impracticable to tie the Ar-

tery; and even after having tied it, the Arm muſt be carefully watched, that in caſe of a Mortification it may be taken off, which though from Experience we learn is very ſeldom the Conſequence, ſhould to all appearance be the perpetual one; for theſe *Aneuriſms* following always upon bleeding the *Baſilick* Vein muſt neceſſarily be *Aneuriſms* of the *Humeral* Artery an inch at leaſt above its Diviſion, which being obſtructed by the Ligature, one would think muſt neceſſarily bring on a Mortification; but we ſee the contrary, though for ſome time after the Operation we can hardly diſtinguiſh the leaſt degree of Pulſe, and ever after they continue languid. If the *Humeral* Artery happens to divide above the Elbow, which is not uncommon, the proſpect of Cure is better, and the Pulſe will be ſtronger after the Operation.

CHAP.

CHAP. XXXVII.

Of AMPUTATION.

A SPREADING Mortification has been always look'd upon as ſo principal a Cauſe for Amputation, that it is a faſhion with all Writers to treat of the nature of a Gangrene previous to the deſcription of this Operation; and I think they have all agreed, that whatever the Species of it be, if the Remedies they preſcribe do not prevent its Progreſs, the Limb muſt be amputated: However, this Operation is ſpoken of as frequently unſucceſsful, and in length of time its want of Succeſs has been ſo unqueſtionably confirm'd by repeated Experiments, that ſome of the moſt eminent Practitioners here in *England*, make that very Diſtemper an exception to the Operation, which ſo few Years ſince was the great Inducement; and the Maxim now is, never to extirpate 'till the Mortification is abſolutely ſtopp'd, and even advanc'd in its ſeparation.

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GANGRENES may be produced two ways, either by Indiſpoſition of Body, or by Accident in a healthful State; for as the Life of a Part depends upon the Circulation of its Fluids, whatever ſhall make the Circulation ceaſe, will inevitably occaſion a Gangrene: Thus a mere Compreſs preventing the Courſe of the Blood, as effectually cauſes a Mortification as any Indiſpoſition in the Fluids or Veſſels.

IT frequently happens in old Age, that the Arteries of the lower Extremities oſſify, which deſtroying their Elaſticity, muſt in conſequence produce a Gangrene in the Toes firſt, and afterwards in the Limb nearly as high as where the Oſſification terminates; ſo that in Mortifications ariſing from this cauſe, we at once ſee why Amputation, during their Increaſe, is of ſo little ſervice, unleſs perform'd above the Oſſification, but we have no way to judge where the Oſſification ends, but by the Inference we make from the Gangrene's ſtopping: Hence we may learn the Propriety of our modern Practice in this caſe.

IF by any Accident the Limb has been injur'd to that violent degree as to begin a Mortification, it will be no more fit to operate here 'till it ſtops, than in the other inſtance,

ſtance, becauſe all Parts that are mortified have had the diſpoſition to become ſo, before the Effect is produc'd, and cutting off a Limb half an Inch above the abſolute dead Skin, is generally leaving a part behind with the Seeds of a Mortification in it; ſo unleſs we can be ſure the Veſſels are not affected in the place of Amputation, which will be hard to know but from the Conſequence, the Operation will be uſeleſs.

SOMETIMES the Fluids of the Body are ſo vitiated as to loſe their proper nutritious Qualities, and the Limb becomes gangrened, not from any Alteration in its Veſſels, but chiefly from its ſituation, which being at a great diſtance from the Heart, will be more prone to feel the ill effects of a bad Blood than any other part, as the Circulation is more languid in the Extremities. When therefore a Gangrene ariſing from this cauſe is running on, Amputation above it will for the moſt part be uſeleſs, ſince it is only removing one of the effects of the bad Juices, and leaving them in the ſame ſtate to produce the like miſchief in other parts: Thus we ſee after Amputations on this account, the Gangrene ſometimes falls on the Bowels, or the other Extre-

Extremities; from which Obſervation I think we may conclude it not ſafe to amputate, 'till the Fluids are alter'd, and this Alteration will preſently diſcover it ſelf by the ſtopping of the Mortification.

I HAVE laid it down as a Rule, that the Mortification ſhould not only be ſtopp'd, but advanc'd in its ſeparation; the reaſon of which is, that though the Blood is ſo much alter'd for the better as to occaſion a ſtoppage of the Gangrene, yet at this point of alteration 'tis ſtill in a bad ſtate, and ſhould be left to mend, with the utmoſt tranquillity of Body, and aſſiſtance of Cordial Medicines, 'till ſuch time as Granulations of Fleſh upon the living part of the Extremity ſhew the balſamick Diſpoſition of the Blood: In the mean while, to take off the Stench of the Gangrene, it may be wrapt up in ſpirituous or odoriferous Applications. I have ſeen ſome Limbs taken off immediately upon the Mortification's ceaſing, when afterwards the Patients have ſunk from frequent Effuſions of Blood not diſcharged by the great Veſſels, but the whole Stump: Theſe Hæmorrhages I conceive were owing to the thinneſs of the Blood, which hardly gave a reddiſh Tincture to the Cloaths and Bandages; on the other hand,

hand, upon waiting a conſiderable time after the ceaſing of the Mortification, I have taken off ſome my ſelf with as good ſucceſs as for any other Diſorder.

GUNSHOT Wounds, compound Fractures, and all ſudden Accidents requiring Amputation, are attended with the beſt ſucceſs if immediately perform'd. Diſorders of the Joints, Ulcers of long ſtanding, and all ſcrophulous Tumours, do ſometime return on other Parts after the Operation. When a Leg is to be amputated, the manner of doing it is this.

LAY your Patient on a Table three Foot four Inches high, which is much better than a low Seat, both for ſecuring him ſteady, and giving your ſelf the advantage of operating without ſtooping, which is not only painful but inconvenient in the other ſituation. While one of the Aſſiſtants holds the Leg, you muſt roll a ſlip of fine Rag half an Inch broad, three or four times round it, about four or five Inches below the inferior Extremity of the *Patella:* This being pinn'd on, is to ſerve as a Guide for the Knife, which without it perhaps would not be directed ſo dexterouſly: The manner of rolling has always been perpendicular to the length of the Leg, but having

having obſerved that tho' the Amputation at firſt be even, yet afterwards the *Gaſtrocnemius* Muſcle contracting, draws back the inferior part of the Stump more ſtrongly than the other Muſcles can do the reſt of it; I have lately, in order to preſerve the regularity of the Cicatrix, allow'd for this exceſs of Contraction, and made the circular Inciſion in ſuch a manner that the part of the Wound which is on the Calf of the Leg, is a little farther from the Ham than that on the Shin is from the middle of the *Patella*.

IN the mean time one of your Aſſiſtants muſt carry a ſtrong Ligature round the Thigh about three or four Inches above the *Patella*, which paſſing through a couple of Slits in a ſquare piece of Leather, he muſt twiſt with a Tournequet 'till the Artery is ſufficiently compreſs'd, to prevent any great Effuſion of Blood; and to do it more effectually he may lay a Bolſter of Tow or Linnen under the Ligature, upon that part where the Artery creeps.

THE Courſe of the Blood being ſtopp'd, you muſt begin your Inciſion juſt below the linnen Roller, on the under part of the Limb, bringing your Knife towards you, which at one

one ſweep may cut more than the Semicircle, then beginning your ſecond Wound on the upper part, it muſt be continued from the one Extremity to the other of the firſt Wound, making them but one Line. Theſe Inciſions muſt be made quite through the *Membrana Adipoſa*, as far as the Muſcles; then taking off the linnen Roller, and an Aſſiſtant drawing back the Skin as far as it will go, you make your Wound from the edges of it when drawn back through the Fleſh to the Bone, in the ſame manner as you did through the Skin. Before you ſaw the Bones, you muſt cut the Ligament between them with the point of your Knife, and the Aſſiſtant who holds the Leg while it is ſawing, muſt obſerve not to lift it upwards, which would clog the Inſtrument.

IN amputating below the Knee, it is of advantage to ſtand on the inſide of the Leg, becauſe the *Tibia* and *Fibula* lie in a poſition to be ſaw'd at the ſame time, if the Inſtrument be apply'd externally: Whereas if we lay it on the inſide of the Leg, the *Tibia* will be divided firſt, and the *Fibula* afterwards, which not only lengthens the Operation, but is alſo apt to ſplinter the

the *Fibula* when it is almoſt ſaw'd through, unleſs the Aſſiſtant be very careful in ſupporting it.

WHEN the Leg is taken off, the next regard is to be had to the ſtopping the Blood, which muſt be effectually done before the Patient is put to Bed, or there will be great danger of bleeding again, when the Fever is excited, and the Veſſels of the Stump dilated, both which happen a very little while after the Operation. There is no Method for this purpoſe ſo ſecure, as tying the Extremities of the Veſſels with a Ligature, which with a crooked Needle paſs'd twice through the Fleſh, almoſt round them, will, when the Knot is made, neceſſarily incloſe them in the Stricture; and to diſcover the Orifice of a Veſſel your Aſſiſtant muſt every time looſen the Tournequet: This is a much better way than uſing the Artery Forceps, where the Veſſels are apt to ſlip away out of the Ligature; and as to ſtyptick Applications, their want of ſafety is ſo well known now, that the uſe of them, in Hæmorrhages from large Veſſels, is almoſt univerſally rejected.

IT

IT ſometimes happens in a large Stump, that ten or more Veſſels require tying, which done, you muſt apply looſe dry Lint to the Wound; or in caſe the ſmall Veſſels bleed plentifully, you may throw a handful of Flower amongſt the Lint, which will contribute to the more effectual ſtopping up their Orifices: Before you lay on the Pledgit, you muſt bind the Stump, and begin to roll from the lower part of the Thigh down to the extremity of the Stump. The uſe of this Roller is to keep the Skin forwards, which, notwithſtanding the ſteps already taken to prevent its falling back, would in ſome meaſure do ſo, unleſs ſuſtained in this manner. The Dreſſings may be ſecur'd by the croſs Cloth and gentle Bandage, and the Method of treating the Wound may be learnt from what has been ſaid with reſpect to recent incis'd Wounds.

BEFORE the Invention of making the double Inciſion I have juſt now deſcribed, the Cure of a Stump was always a Work of length of time; for by cutting down to the Bone at once, and ſawing it directly, the conſequence was, that the Skin and Fleſh withdrew themſelves, and left it protruding out

of the Wound two or three inches in ſome caſes, ſo that it rarely happen'd that an Exfoliation did not follow, which beſides being tedious, alſo frequently reduc'd the Wound to an habitual Ulcer, and at beſt left a pointed Stump with a Cicatrix ready to fly open upon the leaſt Accident; all which Inconveniencies are avoided by this new Method, and I know not of any Objection to it, unleſs that the pain of making the Wound is ſuppos'd to be twice as much as in the other, becauſe of the double Inciſion, but when we conſider that we only cut the Skin once, and the Fleſh once, though not in the ſame moment, I fancy upon reflexion, the difference of Pain will be thought inconſiderable.

IN amputating the Thigh, the firſt Inciſion is to be made a little more than two inches above the middle of the *Patella*; after the Operation a Roller ſhould be carried round the Body and down the Thigh to ſupport the Skin and Fleſh; this is alſo the moſt proper Bandage, as Abſceſſes will ſometimes form in the upper part of the Thigh, which cannot diſcharge themſelves ſo conveniently with any other, it being almoſt impracticable to roll above the Abſceſs, unleſs we begin from the Body.

THE

THE Amputation of the Arm and Cubit differs ſo little from the foregoing Operations, that it will be but a Repetition to deſcribe it. However, it muſt be laid down as a Rule, to preſerve as much of the Limb as poſſible, and in all Amputations of the upper Limbs, to place your Patient in a Chair.

THERE are in Armies a great many inſtances of Gun-ſhot Wounds of the Arm near the *Scapula*, which require Amputation at the Shoulder; but the apprehenſion of loſing their Patients on the ſpot by the Hæmorrhage has deterred Surgeons from undertaking it. I have heard of its having been done once, but though it had never been perform'd, we might learn it is practicable from the caſe of a poor Miller whoſe Arm and *Scapula* were both torn from his Body by a Rope which was accidentally twiſted round his Wriſt, and ſuddenly drawn up by the Mill. Almoſt every one in *London* knows the Story, and that he recovered in a few Weeks: It is very remarkable in this Accident, that after fainting, the Hæmorrhage ſtopp'd of it ſelf, and never bled afreſh, though nothing but Lint and Turpentine were laid on the great Veſſels. In caſe therefore of a Wound or Frac-

ture near the Joint, or incurable Fiſtula's in the Joint, not attended with much Caries, I think the Operation may be perform'd ſafely in this manner.

THE Patient's Arm being held horizontal, make an Inciſion through the *Membrana Adipoſa*, from the upper part of the Shoulder acroſs the Pectoral Muſcle, down to the Arm-pit, then turning the Knife with its Edge upwards, divide that Muſcle and part of the *Deltoid*, all which may be done without danger of wounding the great Veſſels, which will become expos'd by theſe Openings, if they be not, cut ſtill more of the *Deltoid* Muſcle, and carry the Arm backward: Then with a ſtrong Ligature, having tied the Artery and Vein, purſue the circular Inciſion through the Joint, and carefully divide the Veſſels at a conſiderable diſtance below the Ligature; the other ſmall Veſſels are to be ſtopp'd as in other caſes.

IN doing this Operation regard ſhould be had to the ſaving as much Skin as poſſible, and to the Situation of the *Proceſſus Acromion*, which projecting conſiderably beyond the Joint, an unwary Operator would be apt to cut upon.

THE

THE Amputation of the Fingers and Toes is better perform'd in their Articulation than by any of the other Methods: For this Purpoſe a ſtrait Knife muſt be us'd, and the Inciſion of the Skin be made not exactly upon the Joint, but a little towards the Extremity of the Fingers, that more of it may be preſerv'd for the eaſier healing afterwards; it will alſo facilitate the Separation in the Joint, when you cut the Finger from the *Metacarpal* Bone, to make two ſmall longitudinal Inciſions on each ſide of it firſt. In theſe Amputations there is generally a Veſſel or two that require tying, and which often prove troubleſome when the Ligature is omitted.

IT may happen that the Bones of the Toes, and part only of the *Metatarſal* Bones are carious, in which caſe the Leg need not be cut off, but only ſo much of the Foot as is diſorder'd; a ſmall Spring-Saw is better to divide with here than a large one: When this Operation is perform'd the Heel and Remainder of the Foot will be of great ſervice, and the Wound heal up ſafely, as I have once found by Experience.

PLATE

PLATE XIV.

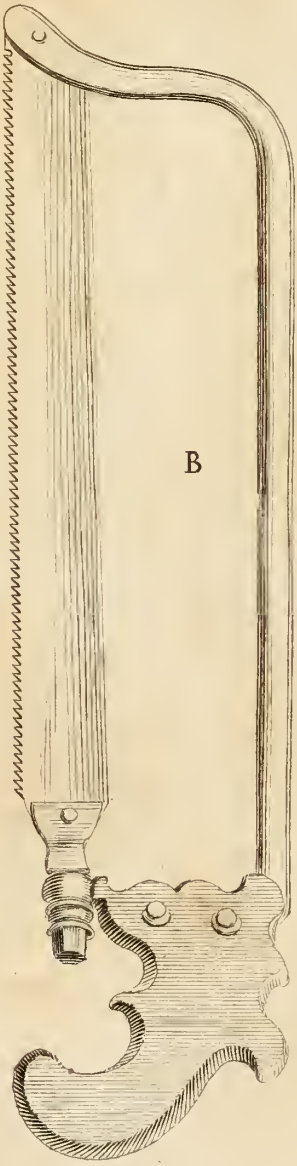
The EXPLANATION.

A. THE Figure of the amputating Knife. The Length of the Blade and Handle ſhould be about thirteen Inches.

B. THE Figure of the Saw us'd in amputating the Limbs. The Length of the Handle and Saw ſhould be about ſeventeen Inches.

FINIS.

A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